



Instruction Manual

elna
+SWISS DESIGN

IMPORTANT SAFETY INSTRUCTIONS

***Your Elna 945 overlock machine is designed and constructed for HOUSEHOLD use only.
Read all instructions before using this overlock machine.***

DANGER - To reduce the risk of electrical shock:

1. Your overlock machine should never be left unattended when plugged in.
2. Always unplug the machine from the electrical outlet immediately after using and before cleaning.
3. Always unplug before replacing light bulb. Replace bulb with same type rated 15 Volts/5 watts.
4. Do not reach for the machine if it has fallen into water. Unplug immediately.
5. Do not place or store machine where it can fall or be pulled into a tub or sink. Do not place it in or drop it into water or other liquid.
4. Never operate the machine with any air opening blocked. Keep ventilation openings of the machine and foot control free from accumulation of lint, dust and fibers.
5. Keep fingers away from all moving parts. Special care should be used around the needle and cutting blades.
6. Do not use bent needles.
7. Do not pull or push fabric while stitching. This may deflect the needle causing it to break.
8. Switch off the machine when making any adjustment in the needle area, such as threading needle, changing needle position, threading looper, changing presser foot, etc.
9. Always unplug the machine from the electrical outlet when removing covers, lubricating or when making any other servicing adjustments mentioned in this instruction manual.

WARNING - To reduce the risk of burns, fire, electrical shock or injury:

1. Do not allow the machine to be used as a toy. Supervision is necessary when this machine is used by or near children.
2. Use this machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as described in this manual.
3. Never operate this machine if it has a damaged cord or plug, is not working properly, has been dropped or damaged, or dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
10. Never drop or insert any object into any opening.
11. Do not use outdoors. Always store your machine indoors.
12. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
13. To disconnect, switch machine off, then remove plug from outlet.
14. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
15. This machine is equipped with a special connection cord which, if damaged, must be replaced by an identical cord. This can be obtained from an authorized dealer or service center.

SAVE THESE INSTRUCTIONS

For U.S.A.

- This appliance has a polarized plug (one blade wider than the other). To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.

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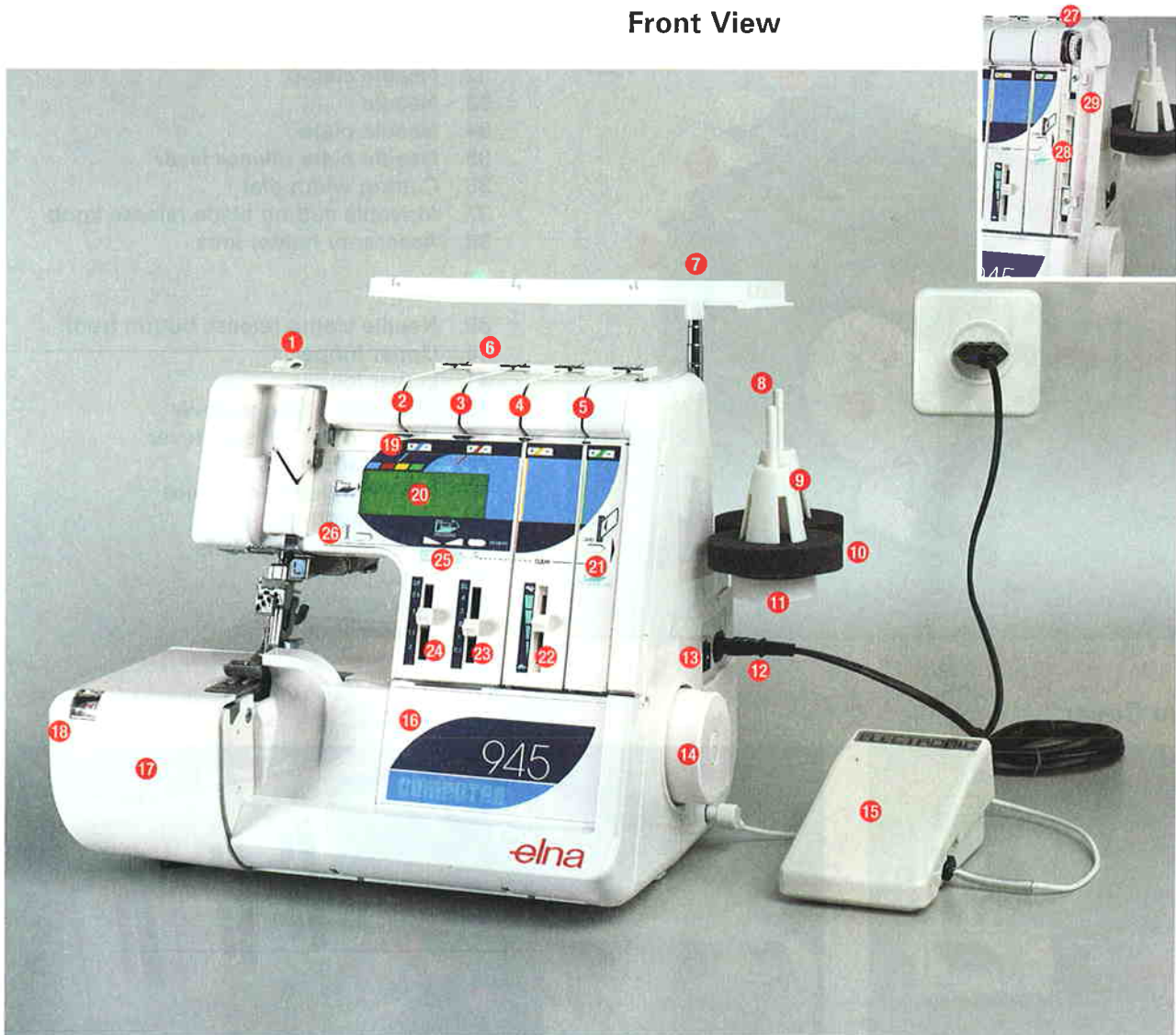
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TROUBLESHOOTING

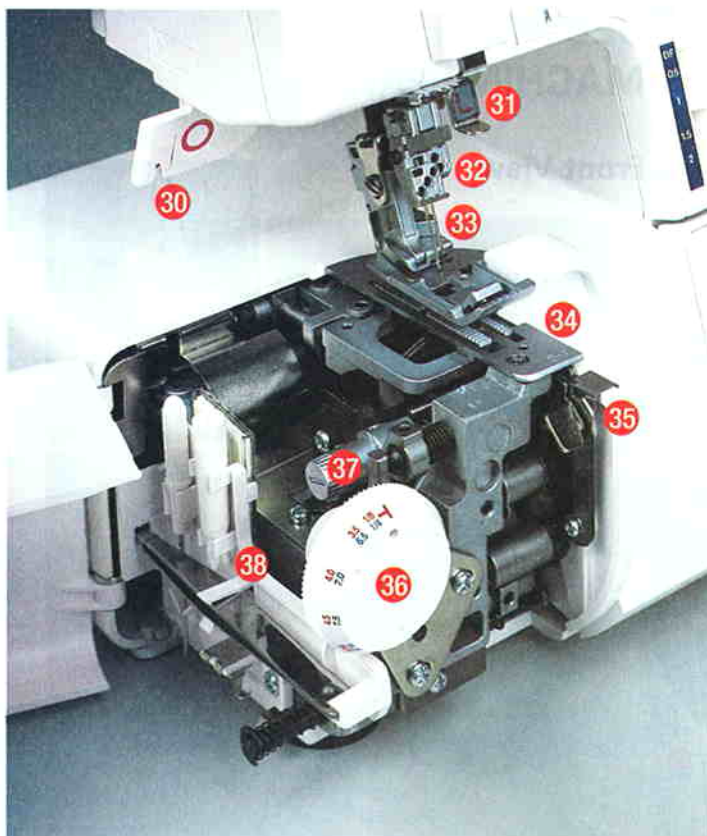
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SECTION I MACHINE PARTS

Front View



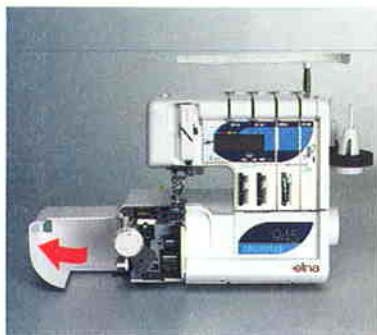
- | | |
|---|---|
| 1. Pressure adjustment dial | 16. Front cover |
| 2. Left needle thread tension (blue) | 17. Side cover |
| 3. Right needle thread tension (red) | 18. Cutting width window |
| 4. Upper looper thread tension (yellow) | 19. Tension adjustment keys |
| 5. Lower looper thread tension (green) | 20. LCD system screen |
| 6. Carrying grip | 21. PRO Card™ selection key |
| 7. Thread guide antenna | 22. Electronic speed reducer lever |
| 8. Spool pin | 23. Stitch length lever |
| 9. Spool holder | 24. Differential feed lever |
| 10. Foam pad | 25. Program selection/memory keys |
| 11. Spool pin base | 26. Tension release key |
| 12. Machine plug | 27. Chain looper thread tension (brown) |
| 13. Power switch | 28. PRO Card slot |
| 14. Flywheel | 29. PRO Card door |
| 15. Foot control | |



- 30. Presser foot lever and thread cutter
- 31. Needle clamp safety lever
- 32. Needle clamp
- 33. Needle
- 34. Needle plate
- 35. Needle plate release lever
- 36. Cutting width dial
- 37. Movable cutting blade release knob
- 38. Accessory holder area

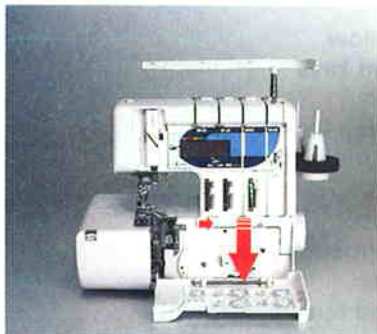
- 39. Needle clamp release button (red)
- 40. Upper looper
- 41. Lower looper
- 42. Chainstitch take-up lever
- 43. Upper looper release lever
- 44. Chain looper
- 45. Instant rolled hem device (stitch width finger)
- 46. Movable cutting blade
- 47. Fixed blade
- 48. Back-tack device
- 49. Presser foot

Side Cover

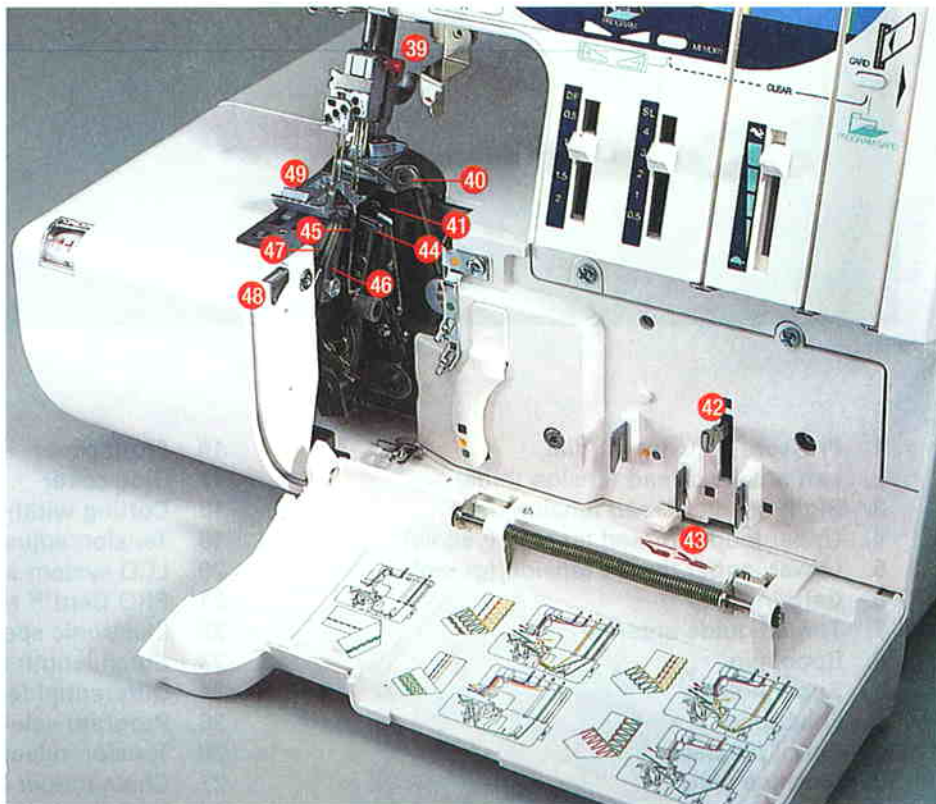


Grasp the cover and open it to the left.

Front Cover

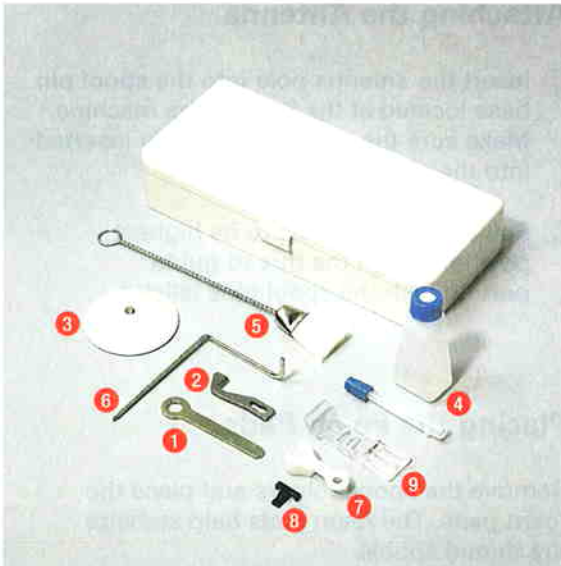


Pull the cover to the right and open it towards you.



STANDARD ACCESSORIES

Accessory Box



1. Wrench for replacing moving blade
2. Spare movable cutting blade
3. Spool caps
4. Oil tube
5. Cleaning brush
6. Quilting guide
7. Snap-on thread guide
8. Tension release clip
9. Clear foot F

Side Cover



1. Allen screwdriver 1.5 mm
2. Tweezers
3. Assortment of needles EL x 705
4. 2 thread converter
5. Needle threader

Machine Box

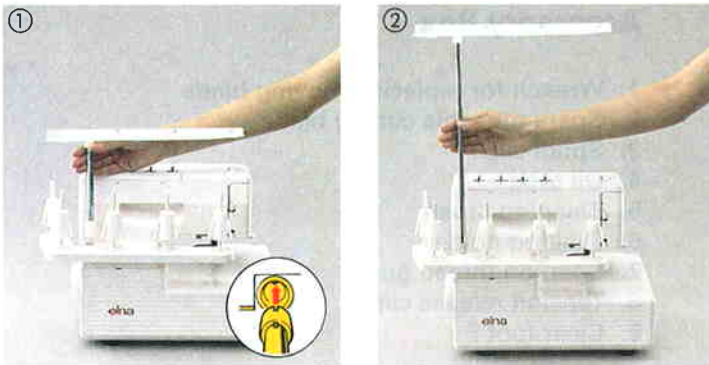


1. Foam pads
2. Spool holders
3. Sewing table
4. Waste tray
5. Dust cover

SECTION II

Machine Set-up

Attaching the Antenna



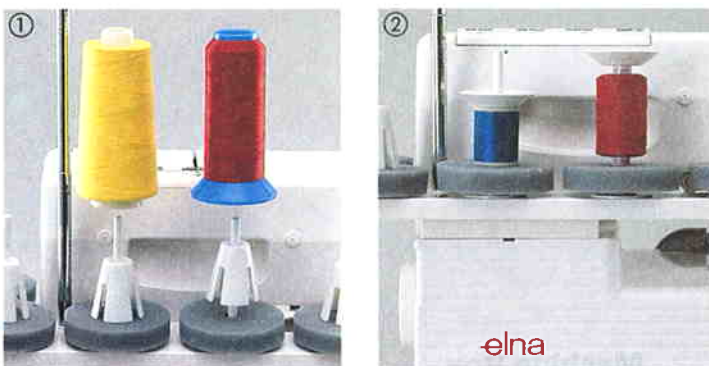
- ① Insert the antenna pole into the spool pin base located at the back of the machine. Make sure the socket is correctly inserted into the slot.
- ② Pull the antenna pole to its highest position. Align the thread guide portion with the spool pins (clicks).

Placing the Foam Pads



Remove the spool holders and place the foam pads. The foam pads help stabilize the thread spools.

Both domestic and industrial type thread spools can be used.



① Industrial type spools

For industrial type spools, use the spool holders. Make sure that the spools touch the bottom.

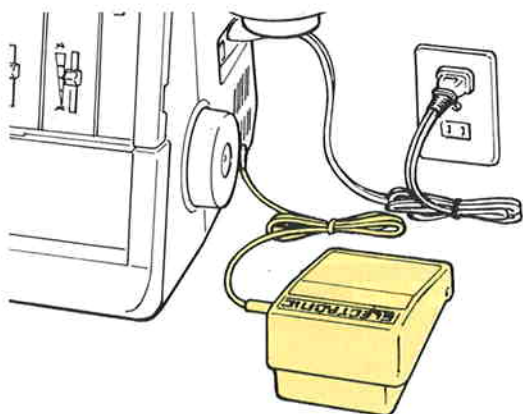
② Domestic type spools

For domestic type spools, use the spool caps only.



③ Decorative type spools

Place the spool directly on the foam pad to prevent the thread from slipping underneath the spool.

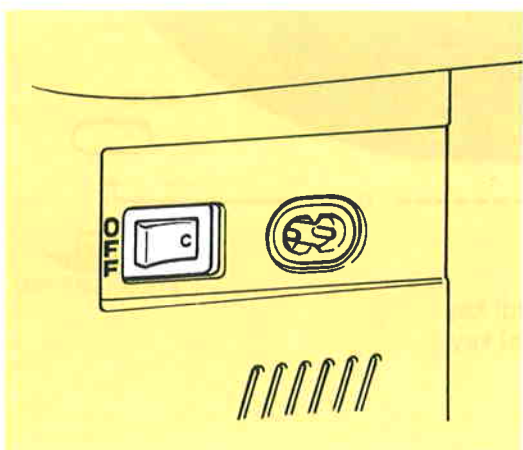


Connecting Machine to Power Supply

Before connecting the power cord, make sure the voltage and frequency shown on the machine are identical to your electrical power. Insert the machine plug into the machine and the power supply plug into the wall.

Connecting the Foot Control

The power switch should be off to connect the foot control. Insert the foot control plug into the machine.



For Your Safety

1. While the machine is in operation, always keep your eye on the sewing area and do not touch any moving parts – needle(s), flywheel, movable blade, loopers, etc.
2. Always switch off the power switch and unplug from the power supply:
 - when leaving the machine unattended
 - when attaching or removing parts
 - when cleaning the machine.
3. Do not place anything on the foot control.

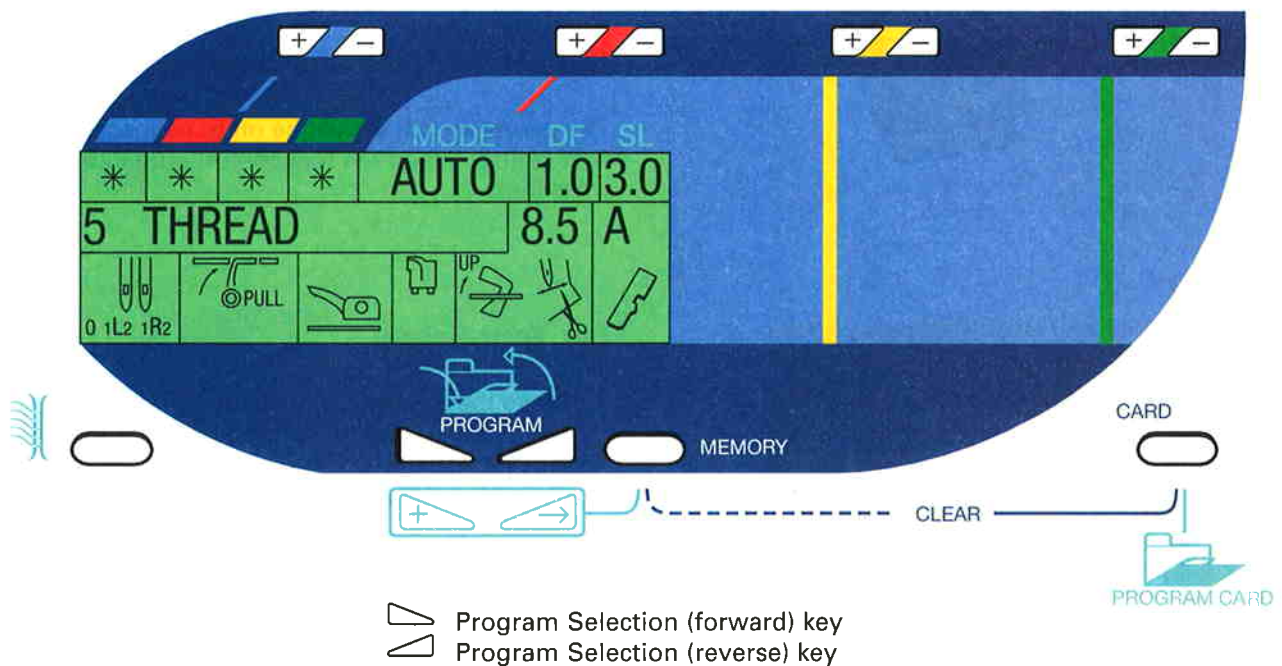
Power Switch

Switch on the power switch to activate the LCD system screen, automatic tensions, motor and light.

SECTION III

How To Read The LCD System

1. The LCD system automatically sets the thread tensions for the stitch program shown on the display screen. In addition, instructions for machine set-up are displayed using easy to read symbols.



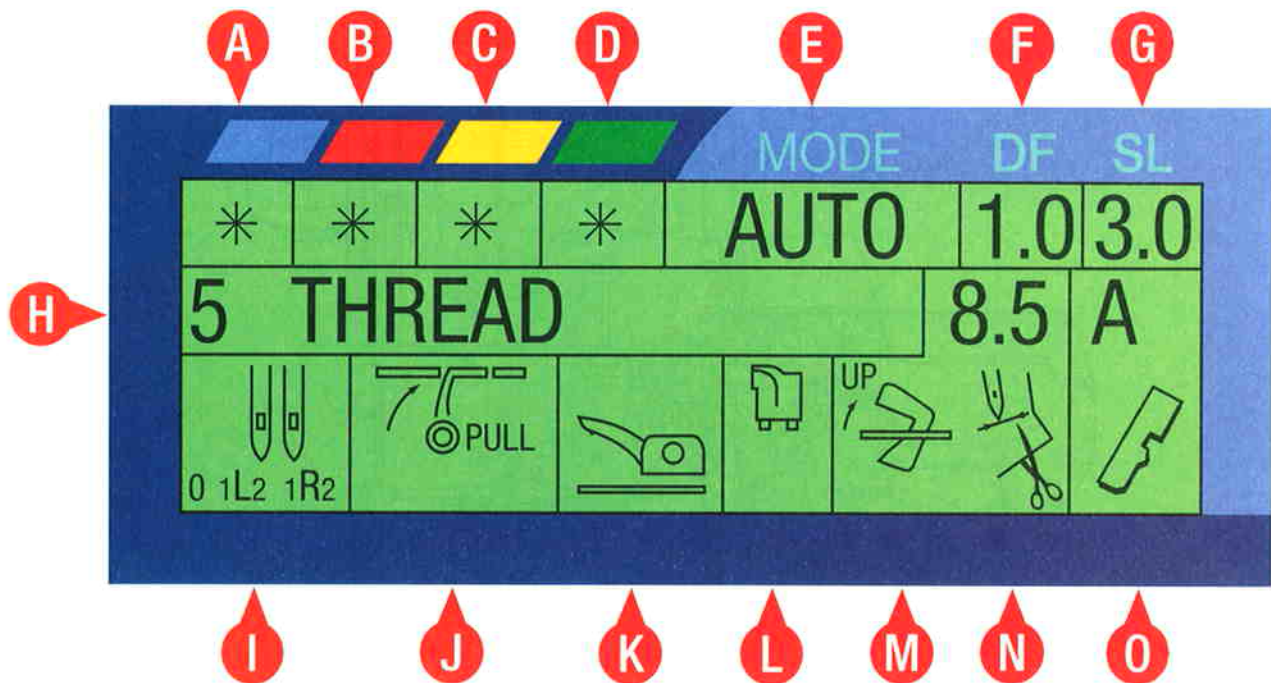
PROGRAM SEQUENCE

1. 5 THREAD
2. 5 THR. 1/4 INCH
3. 4 THR. 1/4 INCH
4. SAFETY 4 THREAD
5. STRETCH KNIT
6. 3 THREAD WIDE
7. OVERLOCK 3
8. DECO BRAIDS 3
9. FLATLOCK 3
10. DECO FLATLOCK 3
11. NARROW HEM 3
12. ROLLED HEM 3
13. ROLLED HEM 2
14. OVERCAST 2
15. FLATLOCK 2
16. DECO LADDER 2
17. FAGOTING 2
18. STRETCH WRAPPED
19. WRAPPED EDGE
20. CHAINSTITCH
21. DECO CHAIN
22. COVER HEM
23. COVER HEM WIDE
24. TRIPLE COVERHEM

2. Press once on either program selection key to change to the next display screen. Press and hold down either key to quickly scroll through the programs.
3. Switch off the power switch. Switch on the power switch and the last program displayed will appear on the LCD screen.

NOTE: It is very important to have the program on the display screen correspond to the desired stitch. Elna recommends physically setting-up the machine before attempting to thread. This ensures that all machine parts are correctly positioned and makes threading easier.

DISPLAY SCREEN SYMBOLS

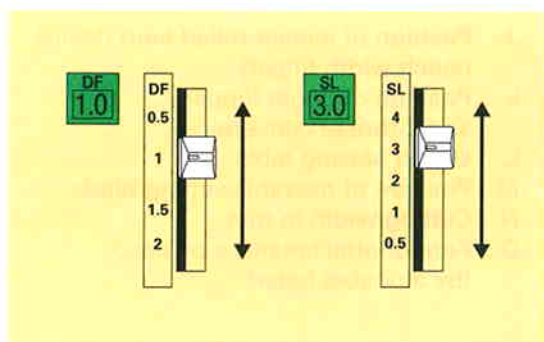
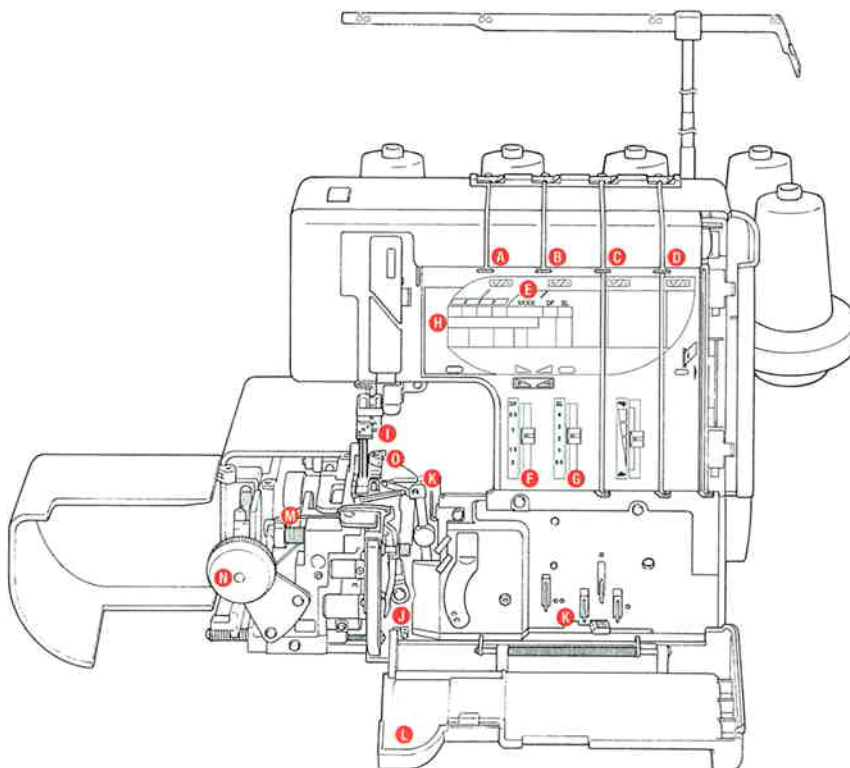


- | | |
|--|--|
| A. Blue thread tension | J. Position of instant rolled hem device (stitch width finger) |
| B. Red thread tension | K. Position of upper looper and 2 thread converter |
| C. Yellow thread tension | L. Use of sewing table |
| D. Green thread tension | M. Position of movable cutting blade |
| E. Mode (AUTO, MANUAL, MEMORY, CARD, CARD M) | N. Cutting width in mm |
| F. Differential feed ratio | O. Foot or attachment to be used (by alphabet letter) |
| G. Stitch length in mm | |
| H. Program name | |
| I. Needle position | |

A, B, C, D tension settings are color coded. Asterisk symbols (*) will appear on the display screen indicating which tensions are to be threaded.

E. The LCD system can operate under five different modes:

- | | |
|--------|--|
| Auto | The original factory settings have not been changed. |
| Manual | The factory settings have been changed for a special thread, fabric or technique. The "manual" readout is a temporary change that will be eliminated when the machine is switched off or if the manual readout is memorized. |
| Memory | The factory settings have been changed to create a new readout. The "memory" program will be intact after the machine is switched off. |
| Card | PRO Cards are available with additional programs that feature more specialty techniques. The original PRO Card settings have not been changed. |
| Card M | An original factory setting or PRO Card setting has been changed and memorized onto the card. |



F. DF = Differential Feed

Move the DF lever to the setting indicated on the display screen. Differential feed may be set from 0.5 to 2.0.

G. SL = Stitch Length

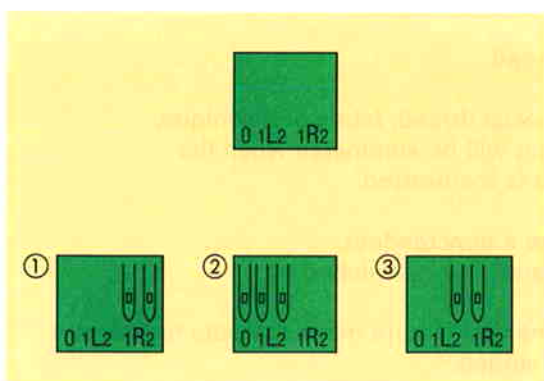
Move the SL lever to the setting indicated on the display screen. Stitch length may be set from 0.5 to 4.0.

H. Program Name

The machine must display the program name of the desired stitch. (See page 6.)

I. Needle Position

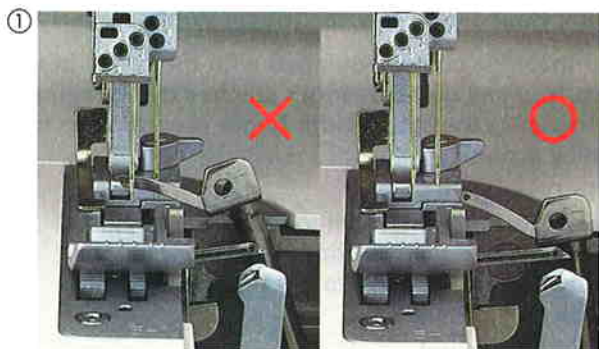
There are 5 needle positions available to sew the programs. A picture of a needle is shown above LO, L1, L2, R1 or R2 to indicate which position will require needle(s). Insert needle(s) into the proper needle position. (See next page for operating tilting needle clamp.)



Example:

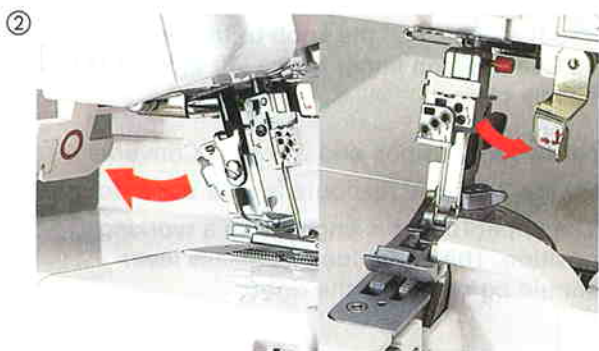
- ① Insert needles in positions R1 and R2
- ② Insert needles in positions LO, L1 and L2.
- ③ Insert needles in positions L2 and R1.

IMPORTANT: Switch off the machine when inserting needles.



Tilting Needle Clamp (An Elna Exclusive)

① The needle clamp can be tilted up to ensure easy needle placement. Before attempting to tilt the needle clamp, make sure the needle clamp is up and the upper looper is not in front of any needle position. Hand turn the flywheel towards you to move needle clamp/upper looper.



② Lower the presser foot. Swing the needle clamp safety lever down to the right.



③ Press the needle clamp release button (red) while tilting the clamp towards you.



④ Each needle position has a set screw. Use the allen screwdriver to loosen the set screw. Insert needle(s) with flat side to the back into new position(s).

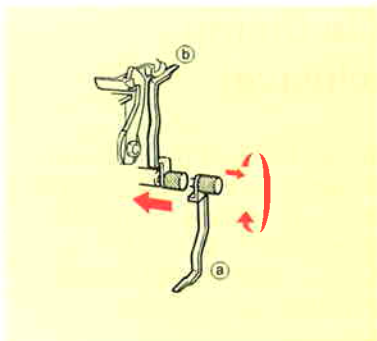
⑤ Tighten set screw.

NOTE: Needles will always sit unevenly. If needles are even, loosen set screws and reinsert needles.



⑥ Tilt down the needle clamp and put the needle clamp safety lever back in position.

NOTE: After moving needles, always hand turn the flywheel to test that needles will pass through the needle plate.



J. Instant Rolled Hem Device (Stitch Width Finger)

Your machine comes equipped with the rolled hem plate. You can do all overlock stitches by engaging or disengaging the stitch width finger according to the display screen.



a. To Disengage (down)

Hand turn the flywheel to lower the needle(s) into the plate. (This brings the upper looper down.) Pull the knob to the right and swing down.



b. To Engage (up)

Hand turn the flywheel to lower the needle(s) into the plate. Pull the knob to the right, swing up and position finger to the left against the needle plate.

K. Upper Looper Position and 2 Thread Converter

There are 3 display readouts for the upper looper.



1. The upper looper is engaged in a working position. The upper looper release lever should be shifted to the right.



2. The upper looper is disengaged to sew a cover hem or chainstitch. Hand turn the flywheel until the needle bar is at its lowest position. Push down the upper looper release lever and shift it left.



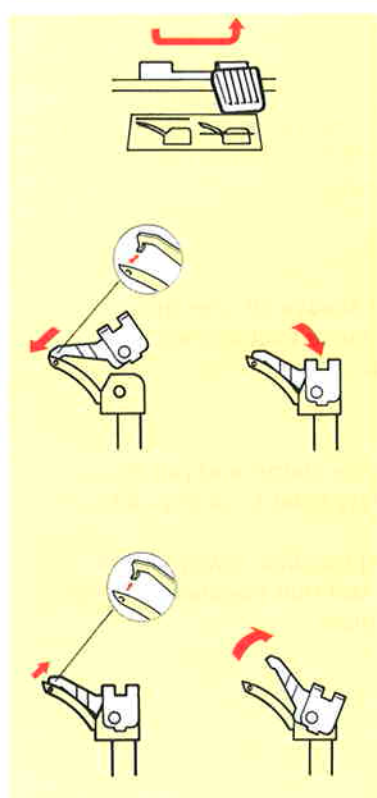
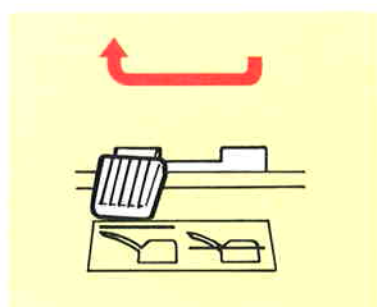
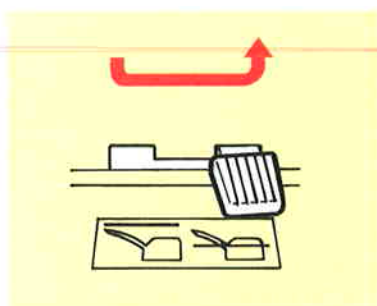
3. The upper looper is engaged and the 2 thread converter must be attached. Hand turn the flywheel until the needle bar is at its lowest position. Push down the upper looper release lever and shift it right. Hand turn the flywheel to bring up the upper looper.

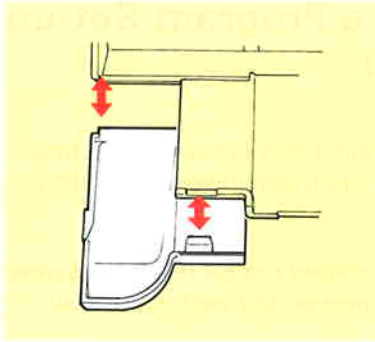
a. Attach 2 thread converter.

Insert hook into the upper looper eye and push down to fit converter to looper base.

b. Remove 2 thread converter.

Pull out hook from looper eye and lift converter off looper base.





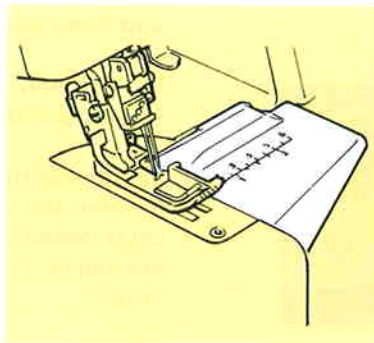
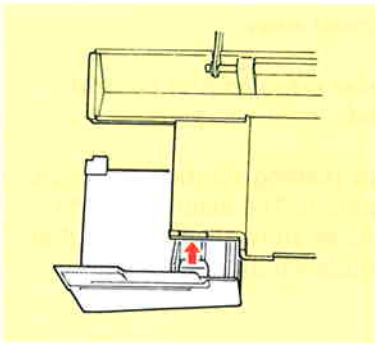
L. Overlock Cover/Sewing Table

The front cover will have either the overlock cover or sewing table attached to it.



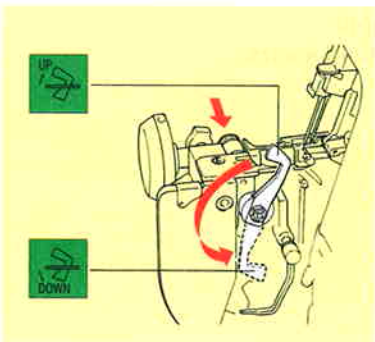
1. Overlock Cover

The overlock cover protects the loopers and is detached by grasping the tab with your thumb and index finger. Pull the tab up slightly and towards you. To attach the overlock cover, slide base onto front cover and "snap" it into place.



2. Sewing Table

The sewing table is used to sew the chainstitches or cover hems. The moving blade, stitch width finger and upper looper will always be disengaged when the sewing table is attached. To install the sewing table, slide table onto front cover with the tab and notch fitting snugly into place.



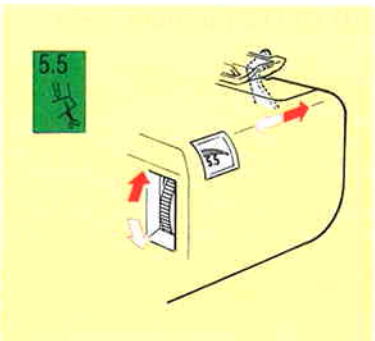
M. Moving Blade Position

To Disengage Moving Blade (down)

Hand turn the flywheel to bring needle bar to its highest position. Open front and side covers. Push moving blade release knob to the right and turn it towards you.

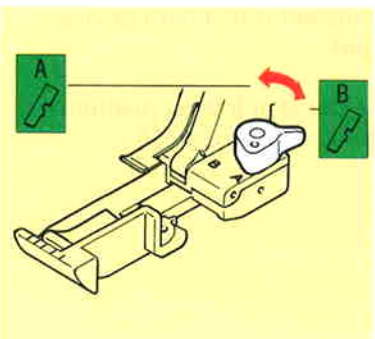
To Engage Moving Blade (up)

Push moving blade release knob to the right and turn it away from you.



N. Set Cutting Width Dial

The cutting width dial indicates the distance between the needle and where the blades cut. The dial displays the settings in millimeters and inches. Turn the dial until the readout on the display screen is visible in the side door window.

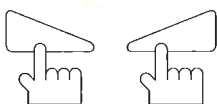


O. Presser Foot (A or B)

Switch the lever on the presser foot to A or B. The lever controls the spring action that occurs on the underside of the foot.

The tip of the foot has markings that line up with the insertion point of the needles - a great guide for accurate sewing.

Example of a Program Set-up Safety 4 Thread

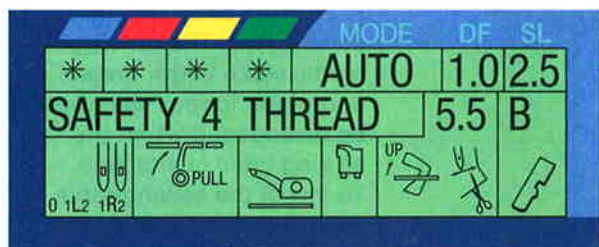


1. Switch on machine. Press program selection keys. (See page 6.) Change display to Safety 4 Thread.

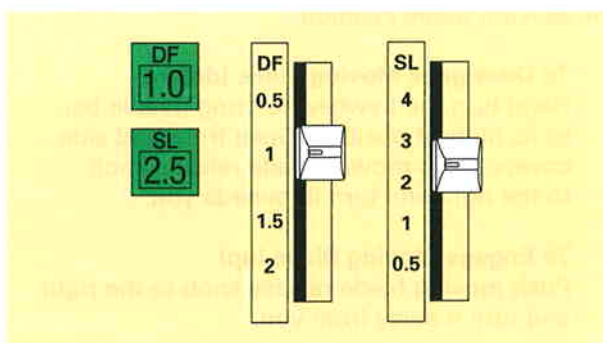
NOTE: Machine should not be threaded before program set-up occurs. Cut and remove all threads.

HINT: Cut thread at looper and needle eyes and hand pull thread away.

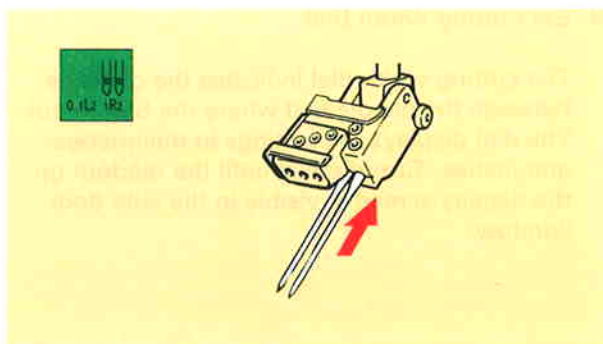
IMPORTANT: Never press on foot control to sew out thread.



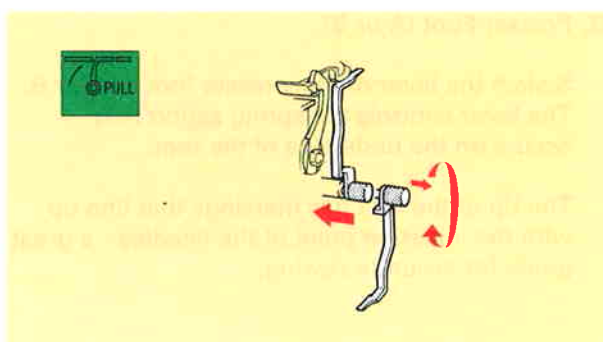
2. Elna recommends reading symbols from left to right, top to bottom. The asterisks in the color coded windows show the tensions that are active. The mode window will display "Auto".



3. Adjust stitch length and differential feed levers.

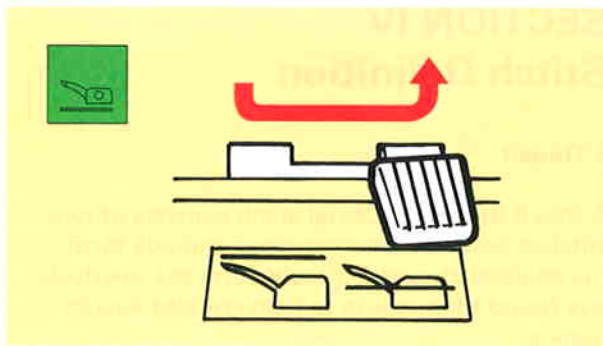


4. Insert needles in R1 and R2 positions. (See page 9.)



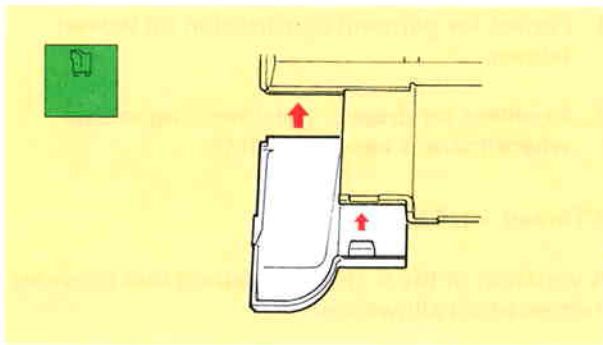
5. Engage (pull up) instant rolled hem device (stitch width finger).

Make sure needle bar is at lowest position before moving device. (See page 10.)

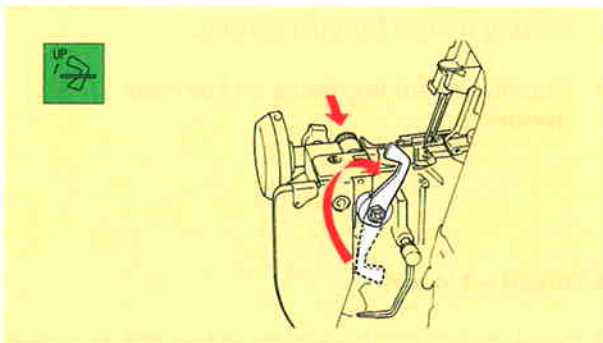


6. Upper looper is up in working position.

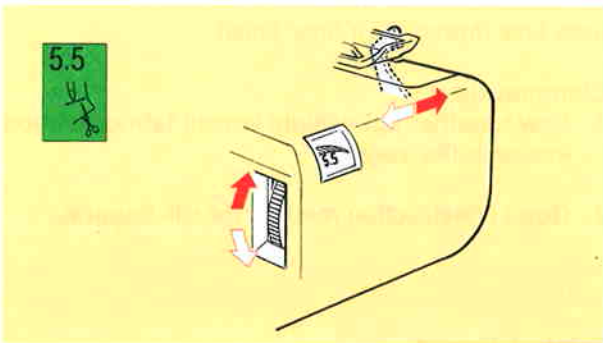
Make sure needle bar is at lowest position before moving lever. (See page 10.)



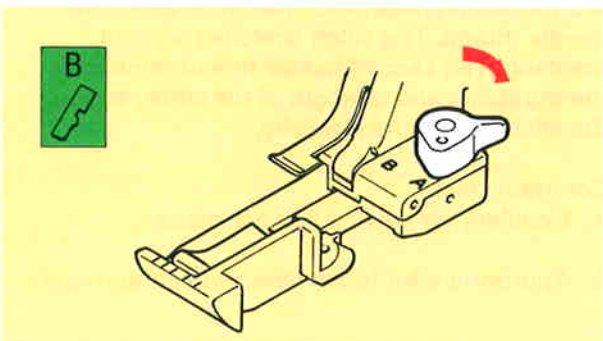
7. Attach overlock cover to front cover.
(See page 11.)



8. Moving blade is engaged (up). (See page 11.)



9. Set cutting width dial at 5.5 mm.
(See page 11.)



10. Switch presser foot lever to "B" position.

SECTION IV

Stitch Definition

5 Thread

A true 5 thread industrial stitch consists of two stitches sewn simultaneously. 2 threads form the chainstitch and 3 threads form the overlock. It is found on medium to heavyweight woven fabrics.

Common Uses

1. Perfect for garment construction on woven fabrics.
2. Excellent for drapes; stabilizes long seams where there is excess weight.



5 Thread – 1/4 Inch

A variation of the 5 Thread program that provides a narrow seam allowance.

Common Uses

1. Great on light to medium weight woven fabrics, making it ideal for quilt piecing.
2. Stabilize shoulder seams on knitwear garments.



4 Thread – 1/4 Inch

A true 4 thread stitch consists of two stitches sewn simultaneously. 2 threads form the chainstitch and 2 threads form the overcast. The overcast stitch uses less thread for a finer finish.

Common Uses

1. Sew together lightweight woven fabrics without excess bulky seams.
2. Good construction method for silk lingerie.



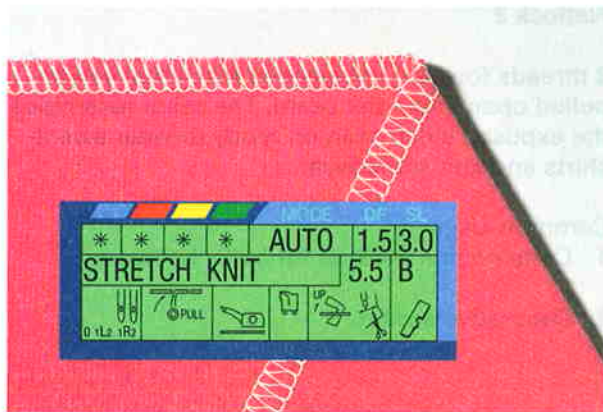
Safety 4 Thread

A 3-thread overlock stitch that adds a second needle thread. The stitch stretches without breaking. The second needle thread reinforces the durability and strength of the stitch, but the stitch retains its elasticity.

Common Uses

1. Excellent for sewing knit garments.
2. Appropriate for loose fitting woven garments.





Stretch Knit

The same characteristics as the Safety 4 Thread. The Stretch Knit program uses the differential feed and stitch length settings to prevent knitwear from stretching while sewing.

Common Uses

1. Apply ribbing to knit necklines, cuffs or waistbands.
2. Construction method for sweater knits.



3 Thread Wide

3 threads lock together on the fabric edge forming a balanced stitch. The overlock stitch is suitable for medium to heavyweight fabrics.

Common Uses

1. Construction method for knitwear.
2. Edge finish on single layer of fabric.

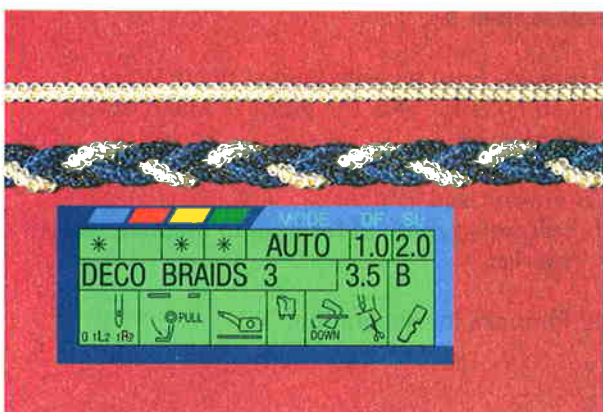


Overlock 3

The same characteristics as the 3 Thread Wide. This narrower version is suitable for light to medium weight fabrics.

Common Uses

1. Construction method for lingerie.
2. Edge finish on single layer of fabric.

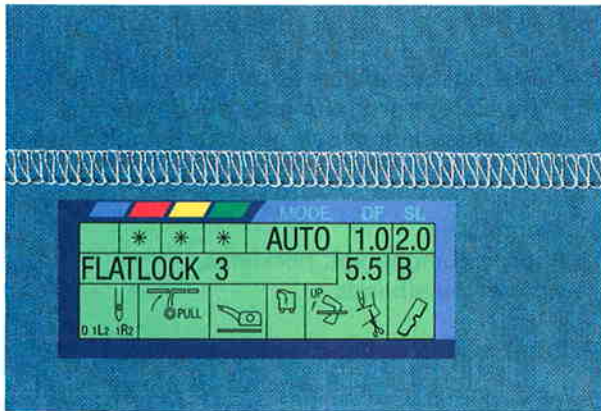


Deco Braids 3

Decorative thread is placed in the upper looper to create a beautiful three thread overlock.

Common Uses

1. Produce decorative overlock braid for enhancing garments, pillows, bags, belts, etc.
2. Form button loops, frogs and other closures.

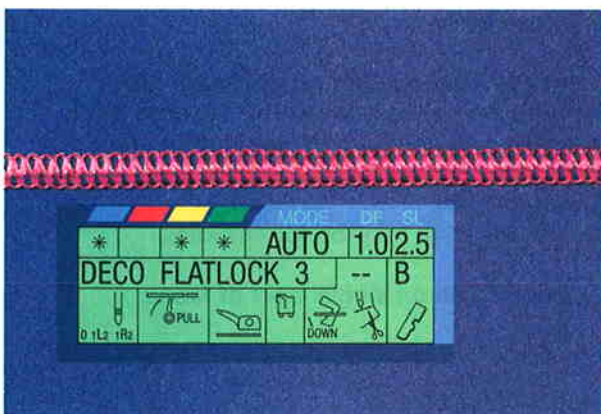


Flatlock 3

3 threads form an unbalanced stitch that can be pulled open into a flat seam. The seam resembles the exposed stitch seen on ready-to-wear sweat-shirts and knit sportswear.

Common Uses

1. Construction method for bulky knitwear.
2. Decorative accent.



Deco Flatlock 3

The same characteristics as the Flatlock 3. Decorative thread is placed in the upper looper to enhance the stitch's appeal.

Common Uses

1. Construction method.
2. Decorative accent.

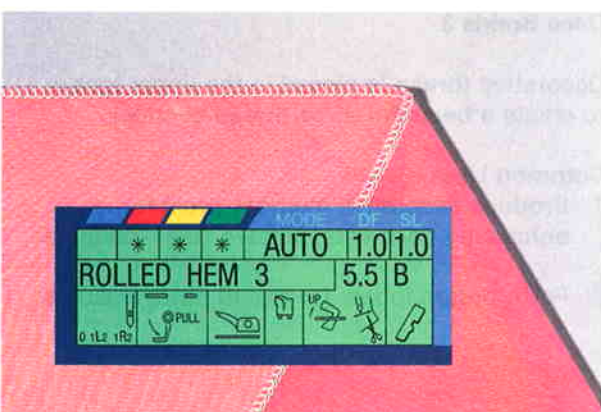


Narrow Hem 3

Three threads form a balanced stitch that is a great narrow edge finish.

Common Uses

1. Hemming method for scarves, napkins and ruffles.
2. Construction method for undergarments made of lightweight knit fabrics.



Rolled Hem 3

3 threads form an unbalanced stitch. When the stitch is formed, the fabric is rolled inside the stitch.

Common Uses

1. Hemming method for light to medium weight fabrics.
2. Pintucks for decoration.



Rolled Hem 2

The needle and lower looper threads form a stitch that rolls the fabric before encasing the edge.

Common Uses

1. Since there are only two threads, the result is lighter and finer than Rolled Hem 3. This is an advantage for lightweight fabrics like chiffon and bridal veiling edging.

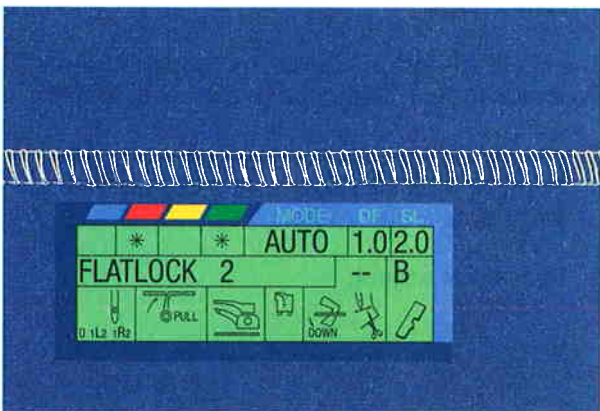


Overcast 2

The needle and lower looper threads form an edge finish that is lightweight and flat.

Common Uses

1. Finish an open seam edge on lightweight fabrics.



Flatlock 2

The needle and lower looper threads form a stitch that can be pulled flat.

Common Uses

1. Construction method for undergarments.
2. Hemming technique.

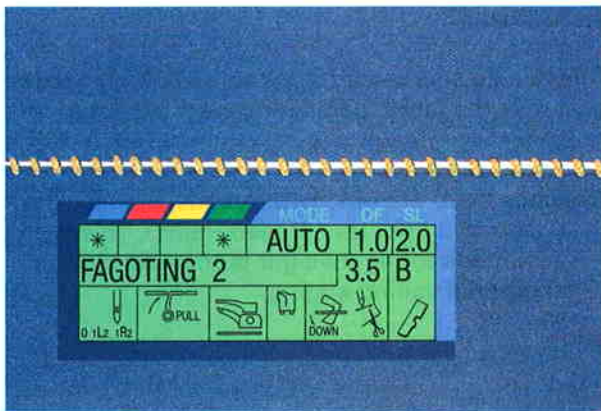


Deco Ladder 2

The stitch is also named "Reverse Flatlock". Decorative thread is placed in the needle and forms the "ladder" when the stitch is pulled apart.

Common Uses

1. Decorative accent.



Fagoting 2

A technique seen in heirloom sewing. Two folded fabric edges are joined together by threads over an open area.

Common Uses

1. Add length to a hemline in a decorative fashion.
2. Piece together a bodice in an undergarment.

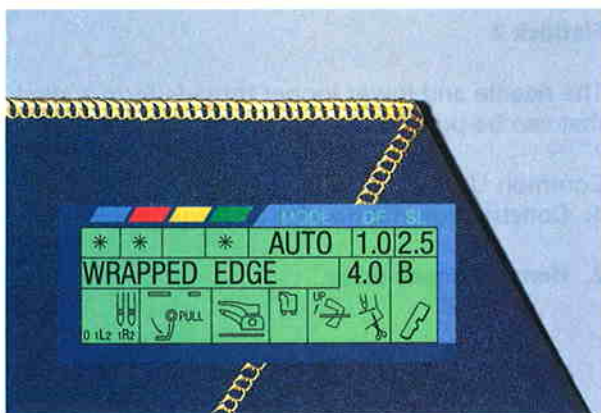


Stretch Wrapped

A stretch stitch that uses two needles and the lower looper. This is the stitch that has the maximum stretch; the second needle thread increases the stitch's durability.

Common Uses

1. Construction method for exercise and swimwear.



Wrapped Edge

The same characteristics as the Stretch Wrapped. Decorative thread is placed in the lower looper.

Common Uses

1. Apply to a bias cut fabric as a decorative edge and create a bias ruffle.
2. Decorative accent.

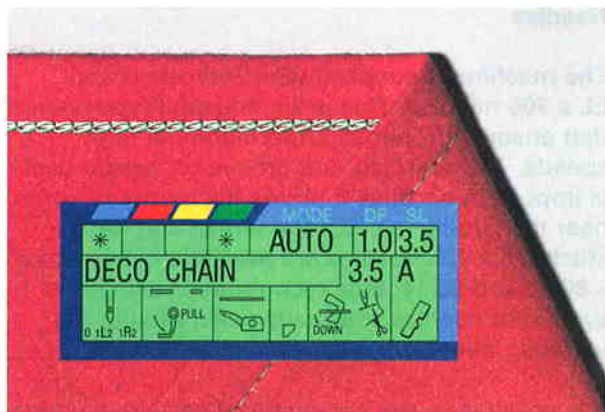


Chainstitch

A 2 thread chainstitch or double chainstitch uses one needle and the chain looper to form a straight stitch. The chainstitch is a stable stitch that has a slight amount of stretch not present in the straight stitch sewn by a conventional sewing machine.

Common Uses

1. Construction method on woven fabrics to create an open seam allowance.
2. Sew knitwear together where the seam needs to be stable.
3. Sew on bias tape.

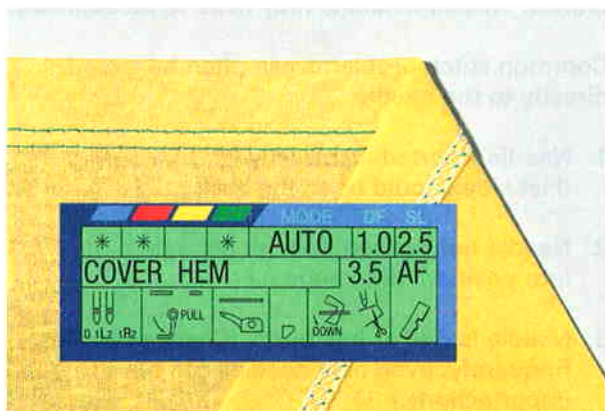


Deco Chain

The same characteristics as the chainstitch. Decorative thread is placed in the chain loop.

Common Uses

1. Create decorative pintucks.
2. Decorative accent sewn randomly over fabric surface.



Cover Hem

The cover hem measures 2.5 mm in width. It uses two needles and the chain looper to form what look like parallel straight stitches.

Common Uses

1. Hem finish on knit fabrics.
2. Topstitching.
3. Pintucks.



Cover Hem Wide

A version of the Cover Hem that measures 5.0 mm in width. The garment industry commonly uses this wider width on knitwear.

Common Uses

1. Hem finish.
2. Topstitching.
3. Belt loops.



Triple Cover Hem

The Triple Cover Hem measures 5.0 mm in width. It uses three needles and the chain looper to form 3 lines of what looks like parallel straight stitches.

Common Uses

1. Hem finish.
2. Topstitching.
3. Belt loops.



Needles

The machine is supplied with Schmetz brand EL x 705 needles. This is an industrial type needle that ensures proper stitch formation at high speeds. The scarf (cut out groove on needle back) is important because it allows the looper to come near the needle to catch the thread and form a stitch. EL x 705 needles are available in two sizes – 80/12 and 90/14. Elna recommends using this system of needles especially when sewing the various Cover Hem stitches.

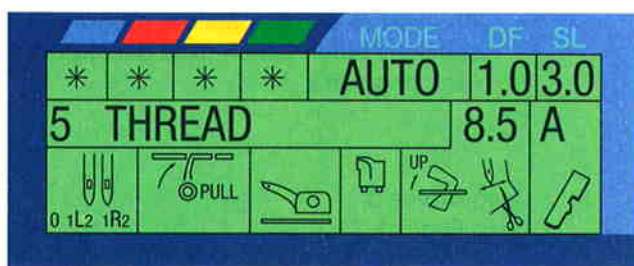
It is possible to use conventional sewing machine needles – 130/705H – for special threads and fabrics. Thread tensions may need to be adjusted.

Common stitch problems can often be traced directly to the needle.

1. Needle inserted incorrectly.
(Flat side should be to the back.)
2. Needle not pushed up high enough into position. (See page 9.)
3. Needle is dull or has burrs. (Change needles frequently; even new needles can have imperfections.)

SECTION V Threading

The threading routes will change according to the selected program.



An asterisk (*) in the color coded tension display window indicates which thread discs to thread.

As you learn to thread your machine, Elna recommends using the thread colors that are shown on the tension dials. This will help you understand the function of each thread.

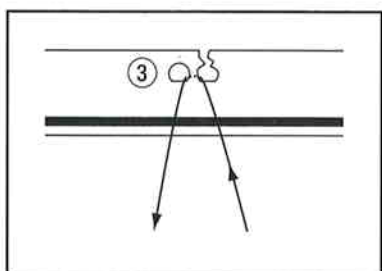
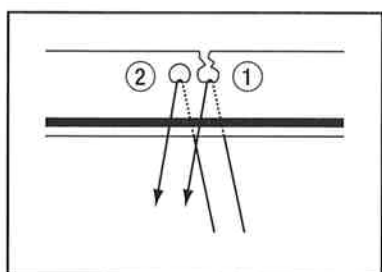
Programs are based on sewer using polyester or a polyester/cotton blend of thread for all threading positions. Choose a brand of thread that is even and consistent with no thick and thin areas.

NOTE: The speed of the machine and the stitch formation stretches the thread as it passes through the tension discs and thread guides. Therefore, it is important that the thread is polyester or a polyester/cotton blend. A 100% cotton thread is too weak and will result in threads breaking.

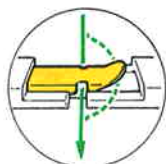
IMPORTANT: Locate the threading diagram for the stitch, study the threading guides carefully and use each guide indicated. The machine must be threaded in the correct sequence. Follow the sequence shown on the Quick Reference Threading Charts. (See pages 22-23.)

Extend the antenna pole to its highest position. (See page 4.)

When threading the antenna thread guide, it is proper to use either the slot (1) or the hole (2). The hole is the recommended method.



Some tightly twisted threads need special threading (3).



After threading the antenna, slip the thread into the first guide on the machine as shown.

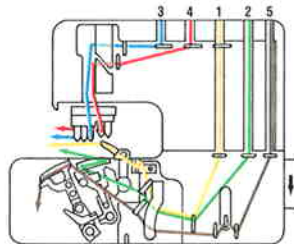
QUICK REFERENCE THREADING CHARTS

Should you need a closer view of the individual threading pathways, refer to the detailed thread route charts indicated by letter (A), (B3), etc. (See pages 24-28.)

An asterisk (*) denotes the program is a specialty stitch which uses decorative thread. (See page 29.)

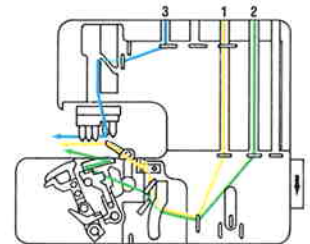
1. 5 Thread 5 Thread 1/4 Inch

- 1 yellow thread for upper looper (E)
- 2 green thread for lower looper (F)
- 3 blue thread for L2 needle (A)
- 4 red thread for R1 needle (C3)
- 5 brown thread for chain looper (I)



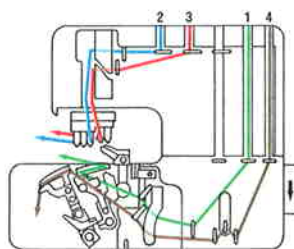
5. * Deco Braids 3 * Deco Flatlock 3

- 1 yellow thread for upper looper (E)
- 2 green thread for lower looper (F)
- 3 blue thread for R1 needle (B4)



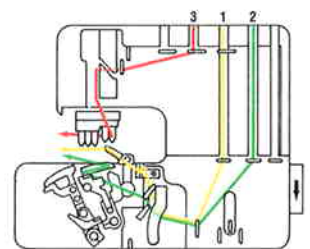
2. 4 Thread 1/4 Inch

- 1 green thread for lower looper (F)
- 2 blue thread for L2 needle (A)
- 3 red thread for R1 needle (C3)
- 4 brown thread for chain looper (I)



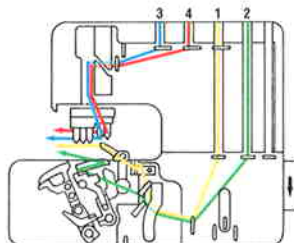
6. Overlock 3 Narrow Hem 3 Rolled Hem 3

- 1 yellow thread for upper looper (E)
- 2 green thread for lower looper (F)
- 3 red thread for R2 needle (C4)



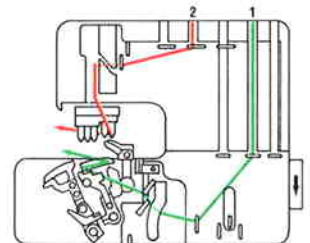
3. Safety 4 Thread Stretch Knit

- 1 yellow thread for upper looper (E)
- 2 green thread for lower looper (F)
- 3 blue thread for R1 needle (B4)
- 4 red thread for R2 needle (C4)



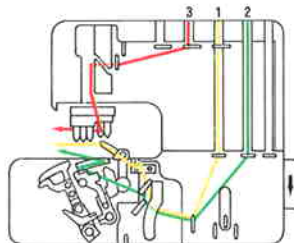
7. Rolled Hem 2 Overcast 2

- 1 green thread for lower looper (F)
- 2 red thread for R2 needle (C4)



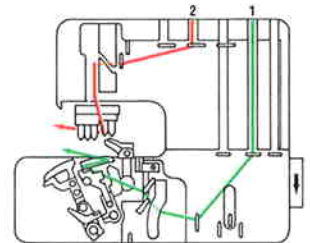
4. 3 Thread Wide Flatlock 3

- 1 yellow thread for upper looper (E)
- 2 green thread for lower looper (F)
- 3 red thread for R1 needle (C3)



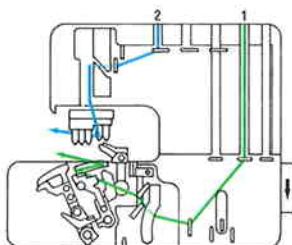
8. Flatlock 2

- 1 green thread for lower looper (F)
- 2 red thread for R1 needle (C3)



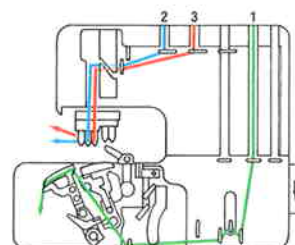
9. * Deco Ladder 2 * Fagoting 2

- 1 green thread for lower looper (F)
- 2 blue thread for R1 needle (B4)



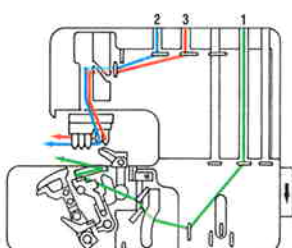
12. Cover Hem

- 1 green thread for chain looper (H)
- 2 blue thread for L1 needle (B2)
- 3 red thread for L2 needle (C2)



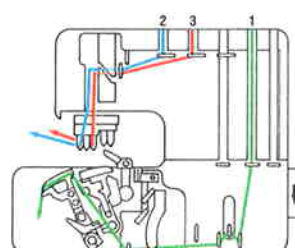
10. Stretch Wrapped * Wrapped Edge

- 1 green thread for lower looper (F)
- 2 blue thread for R1 needle (B4)
- 3 red thread for R2 needle (C4)



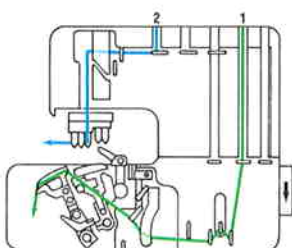
13. Cover Hem Wide

- 1 green thread for chain looper (H)
- 2 blue thread for L0 needle (B1)
- 3 red thread for L2 needle (C2)



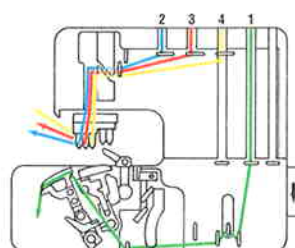
11. Chainstitch *Deco Chain

- 1 green thread for chain looper (G)
- 2 blue thread for L2 needle (A)



14. Triple Cover Hem

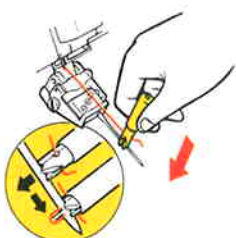
- 1 green thread for chain looper (H)
- 2 blue thread for L0 needle (B1)
- 3 red thread for L1 needle (C1)
- 4 yellow thread for L2 needle (D)



NOTE: To thread the Cover Hem stitches, the chain looper is threaded first and then the needles. Needle threading begins by using the blue tension, then red for the Triple Cover Hem; yellow is last. The needle threads should be separated in the last two guides with the blue to the far left, then red and finally yellow.

If the upper looper thread breaks while sewing, hand turn the flywheel to clear the lower looper thread off the upper looper. Rethread upper looper and hand turn the flywheel to form a stitch.

If the lower looper thread breaks while sewing, cut and remove needle threads from needle eyes. Rethread lower looper. Rethread needle eyes. Needles must be threaded after the lower looper.



How to Use Automatic Needle Threader

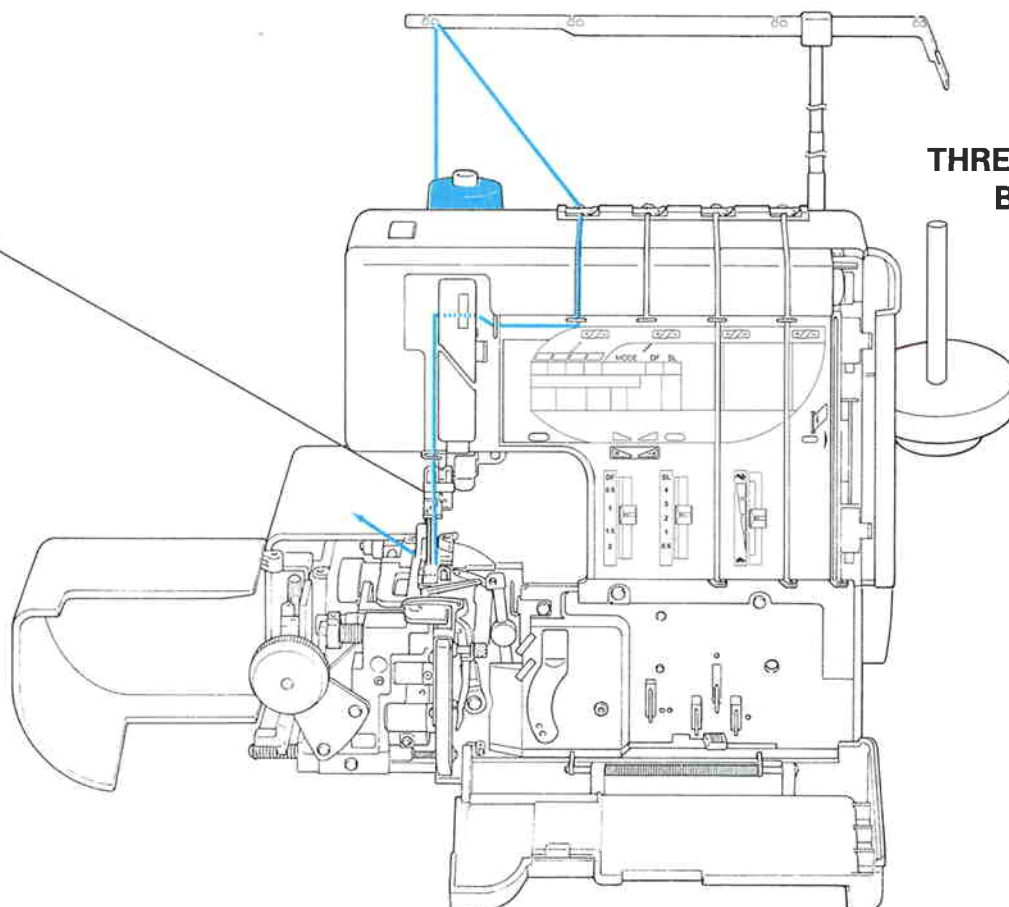
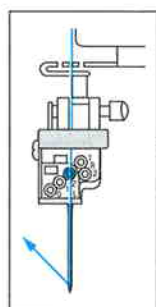
The small triangle indicates the top side of the threader.

Pass a length of thread horizontally into the threader groove. Gently press the threader to the needle and slide it down the needle front.

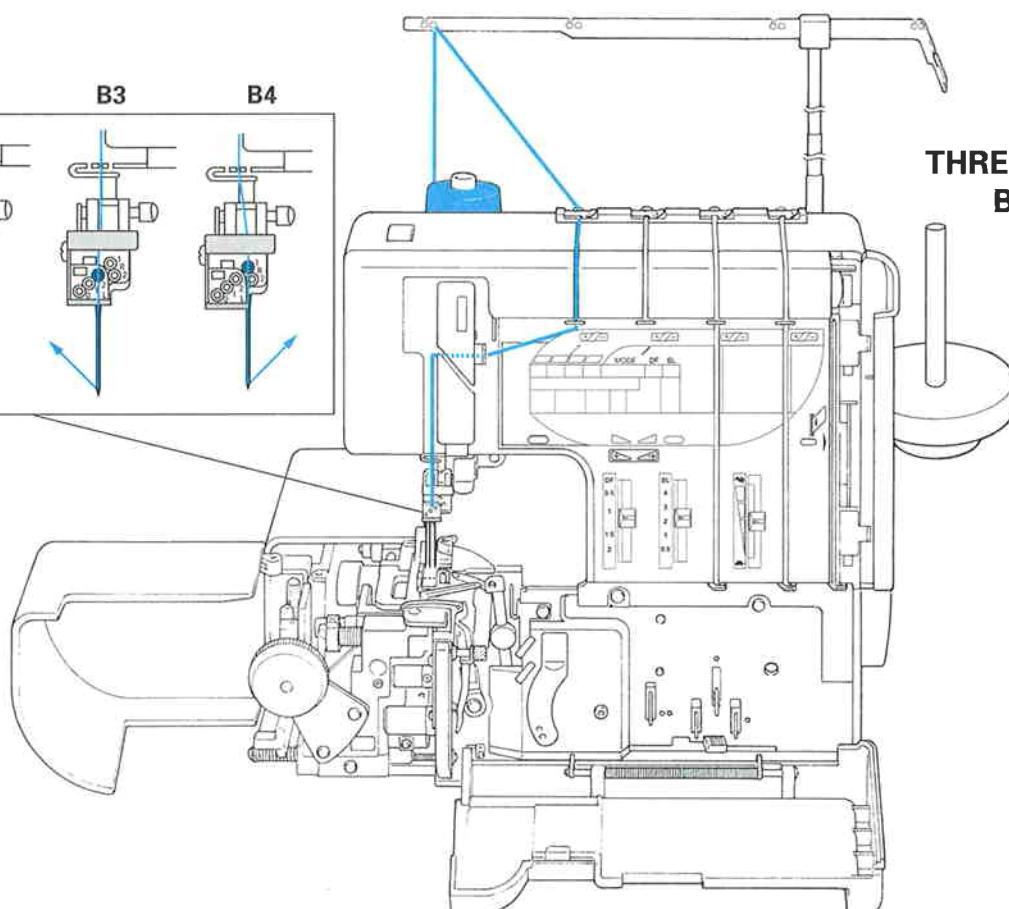
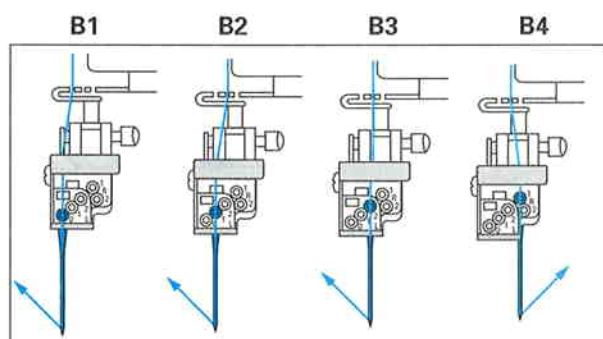
The narrow tongue in the threader pushes the thread through the eye and a loop is formed.

Use your fingers to grasp the loop and pull the thread through the needle eye and under the presser foot.

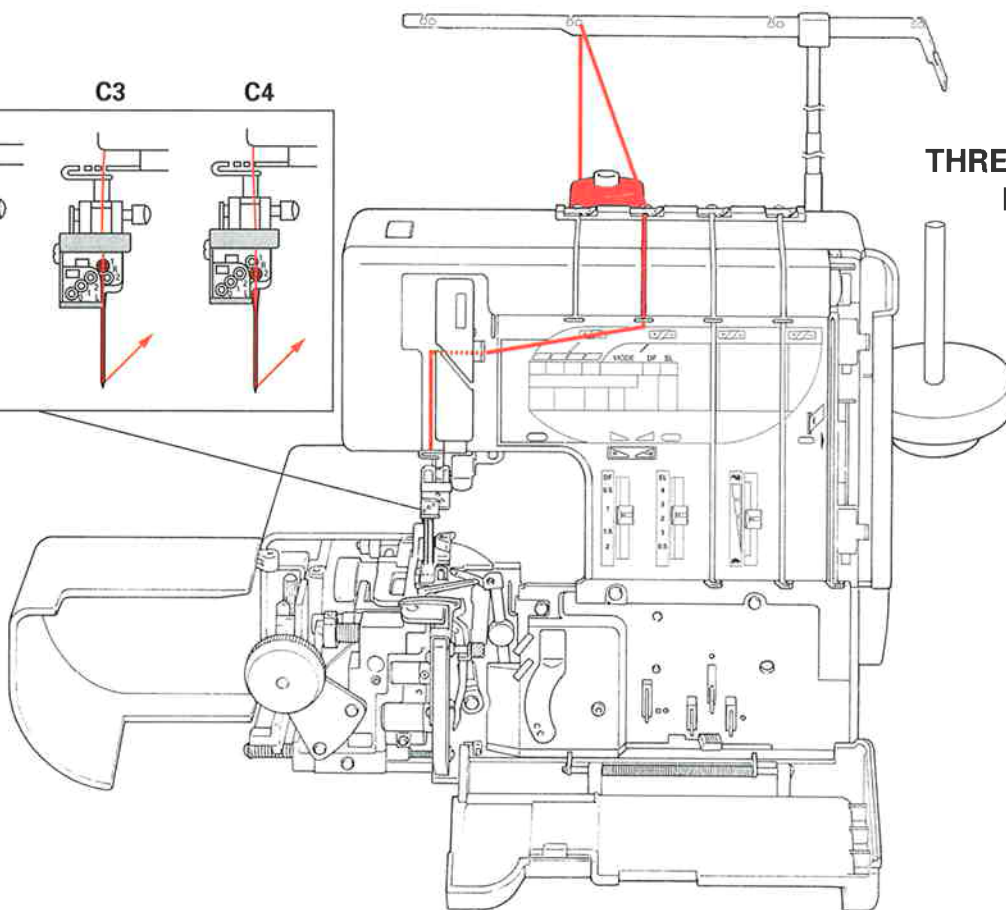
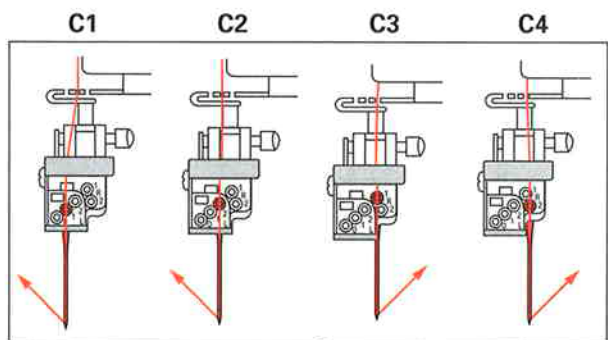
DETAILED THREAD ROUTE CHARTS



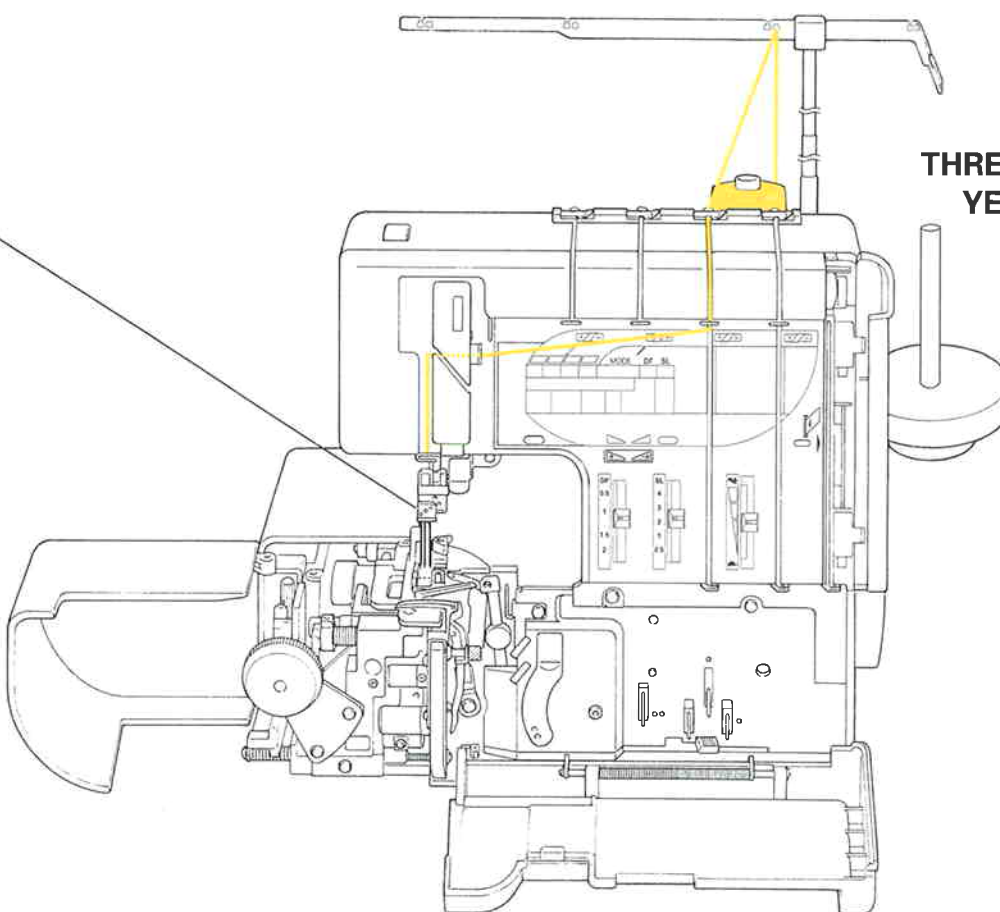
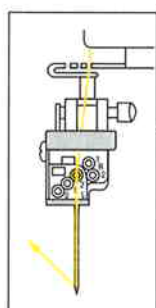
**THREAD ROUTE
BLUE A**



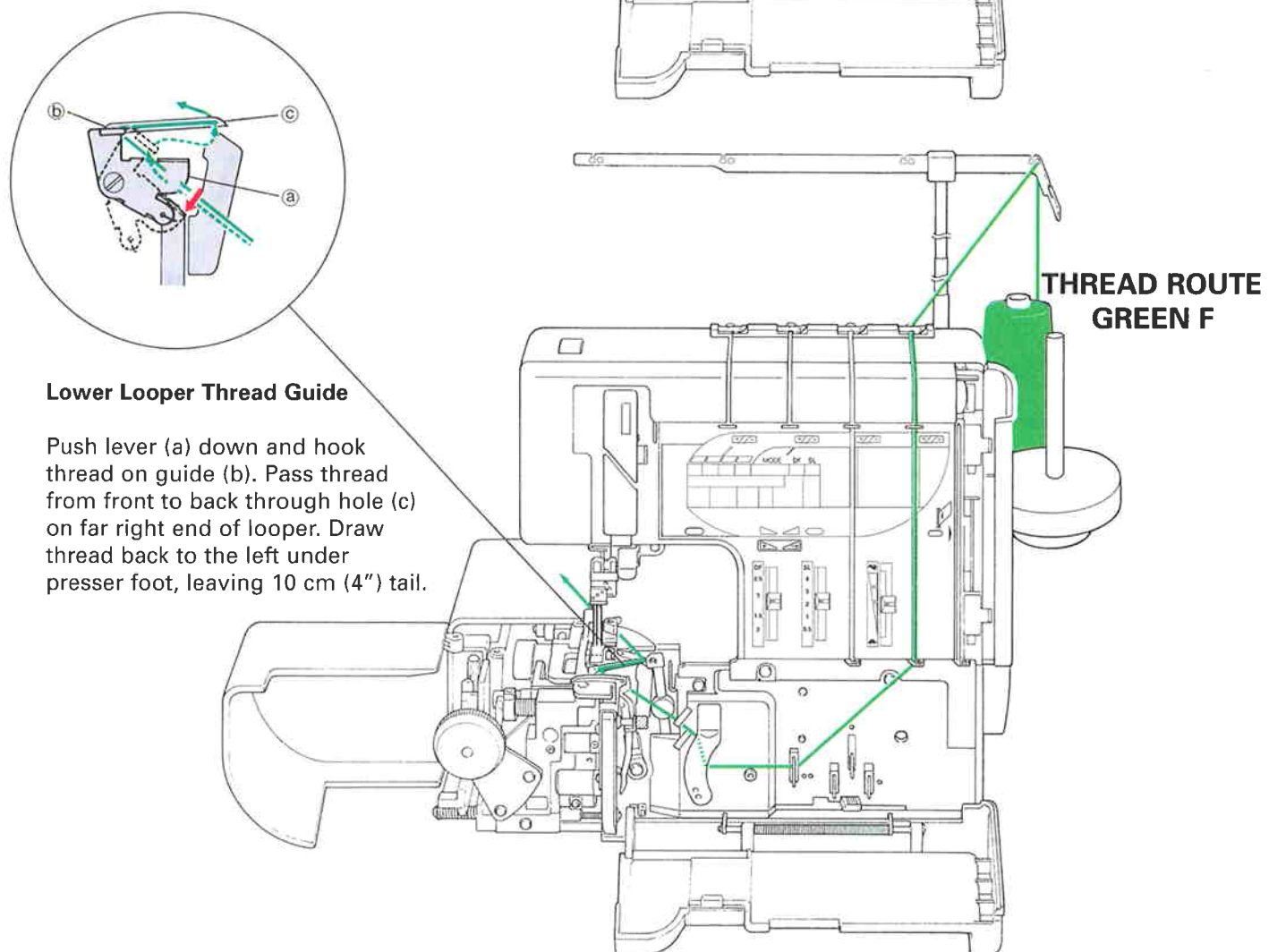
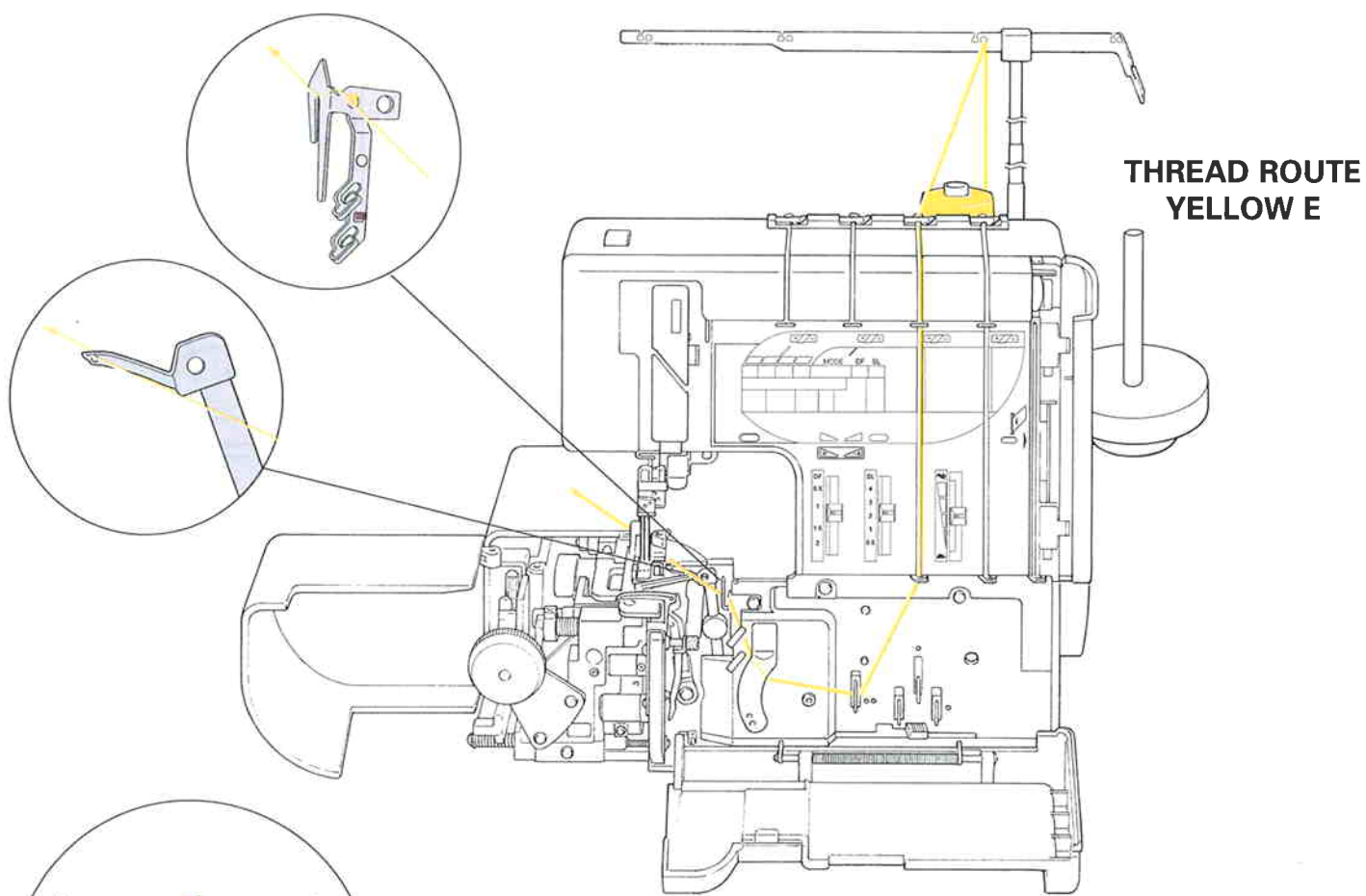
**THREAD ROUTE
BLUE B**



**THREAD ROUTE
RED C**



**THREAD ROUTE
YELLOW D**

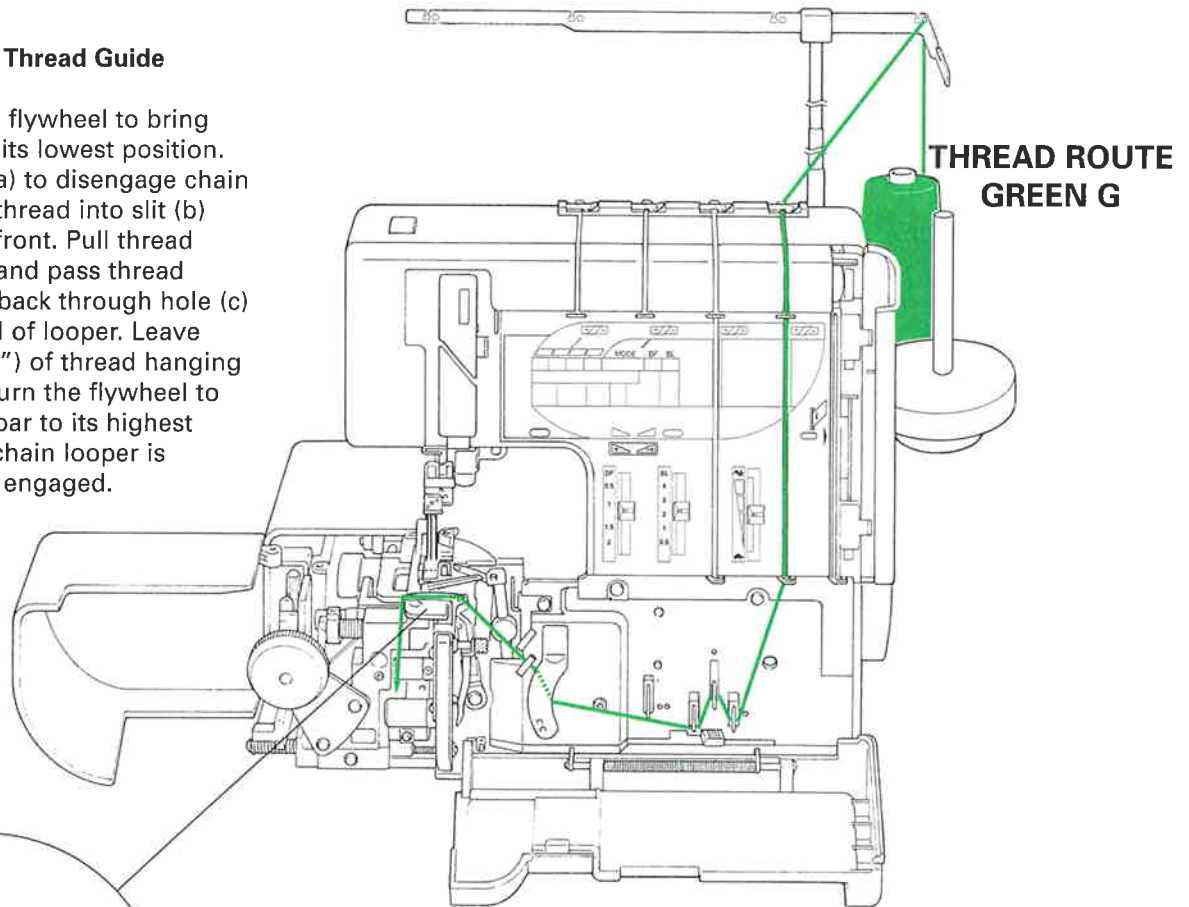


Lower Looper Thread Guide

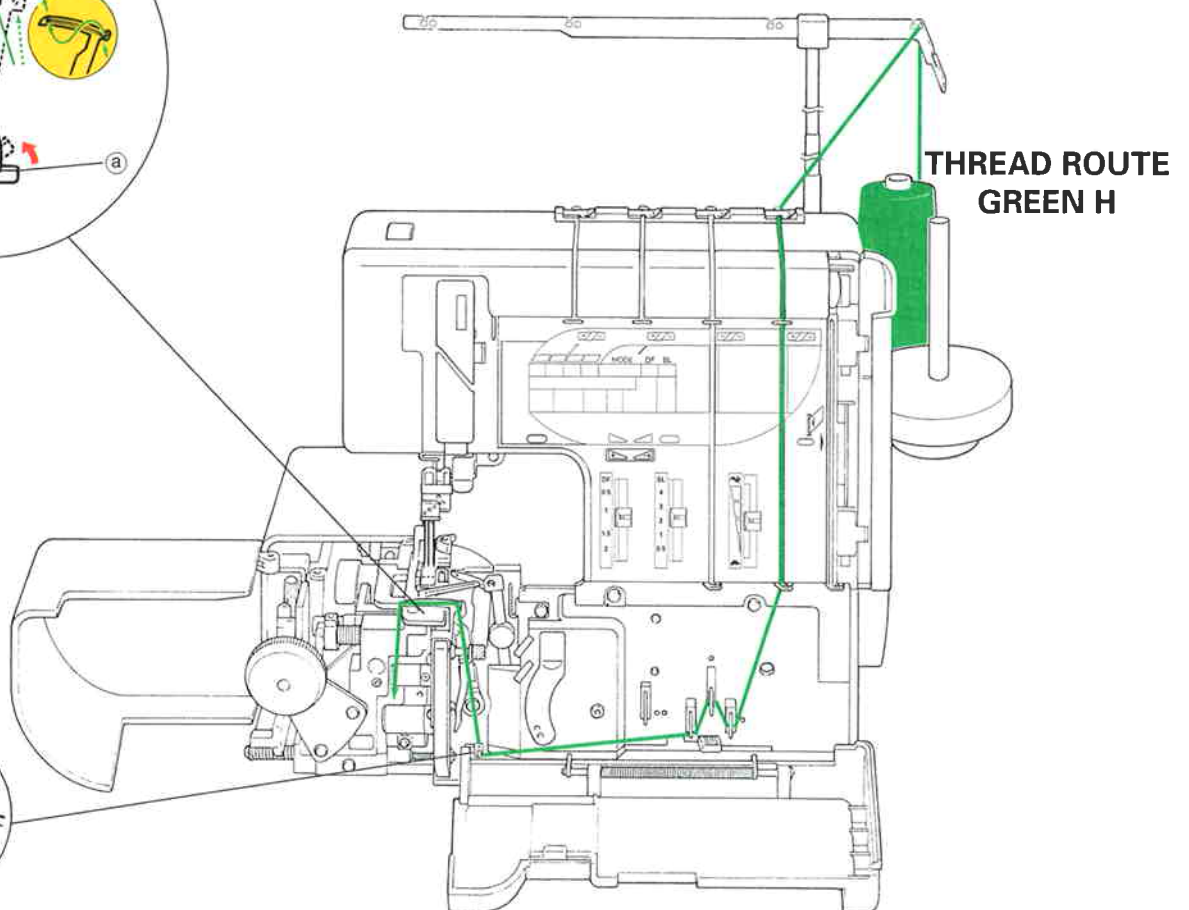
Push lever (a) down and hook thread on guide (b). Pass thread from front to back through hole (c) on far right end of looper. Draw thread back to the left under presser foot, leaving 10 cm (4") tail.

Chain Looper Thread Guide

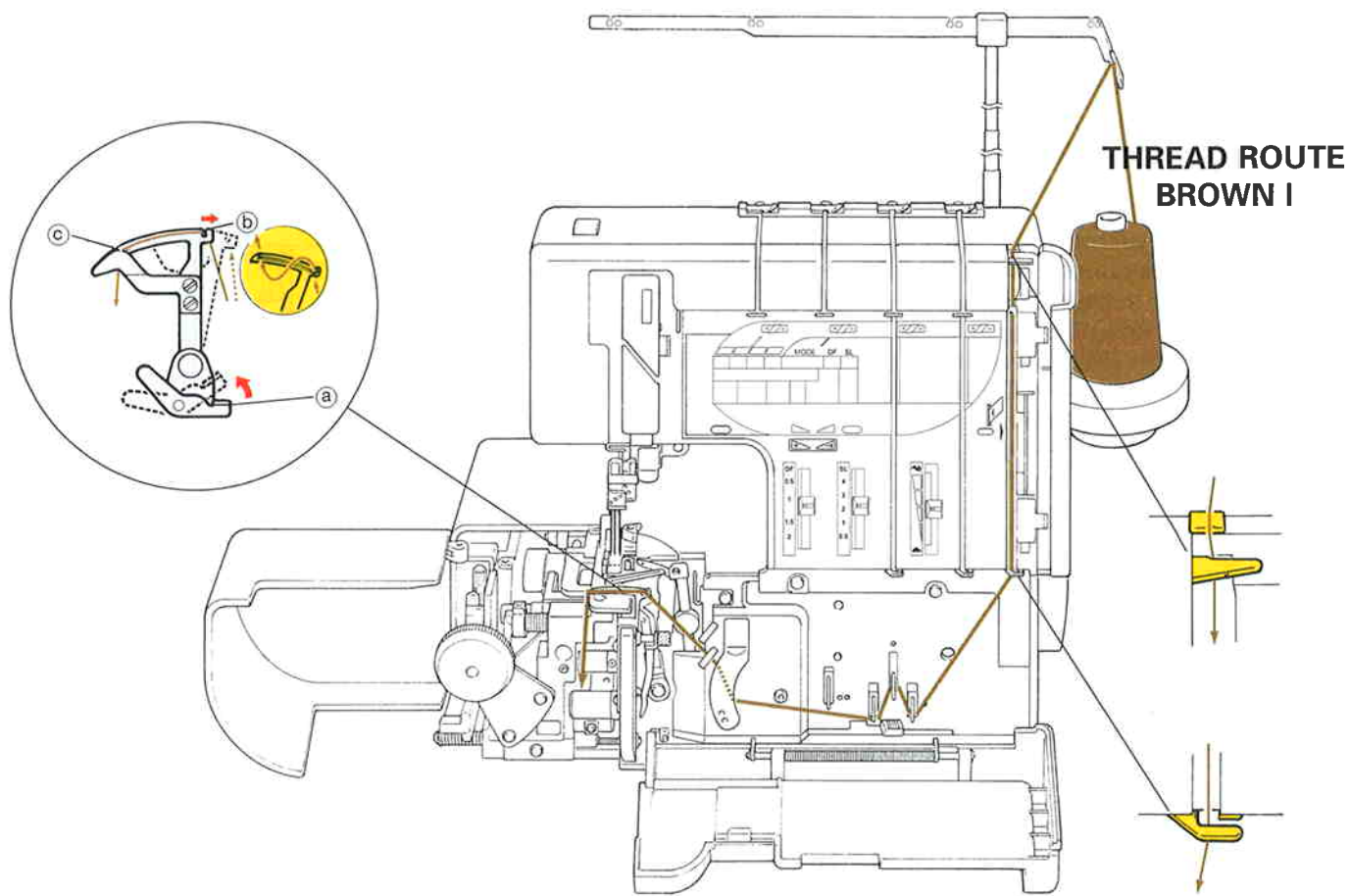
Hand turn the flywheel to bring needle bar to its lowest position. Lift up lever (a) to disengage chain looper. Hook thread into slit (b) from back to front. Pull thread along looper and pass thread from front to back through hole (c) on far left end of looper. Leave about 5 cm (2") of thread hanging down. Hand turn the flywheel to bring needle bar to its highest position and chain looper is automatically engaged.



**THREAD ROUTE
GREEN G**



**THREAD ROUTE
GREEN H**



Chain Looper Thread Guide

Hand turn the flywheel to bring needle bar to its lowest position. Lift up lever (a) to disengage chain looper. Hook thread into slit (b) from back to front. Pull thread along looper and pass thread from front to back through hole (c) on far left end of looper. Leave about 5 cm (2") of thread hanging down. Hand turn the flywheel to bring needle bar to its highest position and chain looper is automatically engaged.

*SPECIALTY STITCHES

There are six programs that require the use of specialty thread.

DECO BRAIDS 3

BLUE standard cone thread
 RED none
 YELLOW heavy decorative thread suitable for overlock use (ex. Ribbon Thread™, Pearl Crown Rayon™, Candlelight™, pearl cotton-size 5)
 GREEN standard cone thread
See page 41 for special sewing instructions.

DECO FLATLOCK 3

BLUE standard cone thread
 RED none
 YELLOW heavy decorative thread suitable for overlock use (ex. Ribbon Thread, Pearl Crown Rayon, Candlelight, pearl cotton-size 5)
 GREEN standard cone thread
See page 41 for special sewing instructions.

DECO LADDER 2

BLUE heavy decorative thread suitable for overlock use (ex. Designer 6™, buttonhole twist)
 RED none
 YELLOW none
 GREEN standard cone thread
See page 41 for special sewing instructions.

FAGOTING 2

BLUE metallic 30 wt. thread, rayon 30 wt. thread or buttonhole twist
 RED none
 YELLOW none
 GREEN clear nylon monofilament
See page 42 for special sewing instructions.

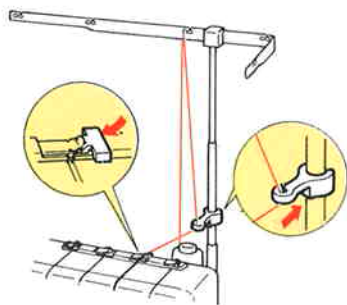
WRAPPED EDGE

BLUE standard cone thread
 RED standard cone thread
 YELLOW none
 GREEN heavy decorative thread suitable for overlock use (ex. Pearl Crown Rayon, Candlelight, pearl cotton-size 5)

DECO CHAIN

BLUE standard cone thread
 RED none
 YELLOW none
 GREEN heavy decorative thread suitable for overlock use (ex. Pearl Crown Rayon, Designer 6, Candlelight)
See page 43 for special sewing instructions.

There are many decorative threads available for overlock use. Make sure you choose threads and yarns that smoothly move through the looper or needle. Never use a thread that breaks easily if you pull on it. Do not use fuzzy (ex. mohair yarn) or uneven threads that can catch on thread guides.



Snap-on Thread Guide

Decorative threads may tangle. Snap the thread guide onto the antenna and place upper looper thread as shown.

Tension Release Clips

Place the tension release clip into any thread guide that is using a decorative thread.

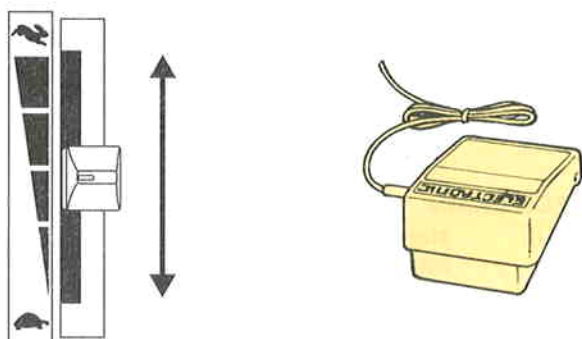
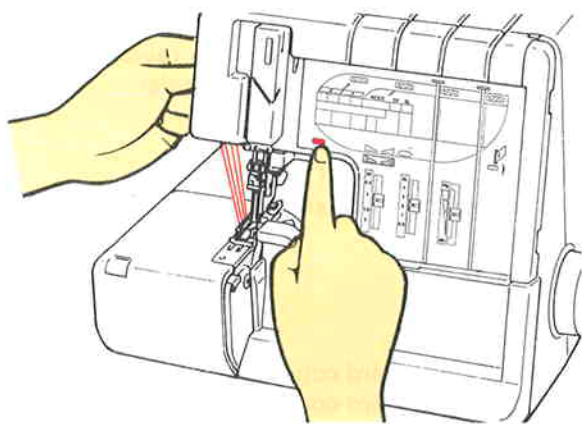
IMPORTANT: When using decorative threads, set the electronic speed reducer lever to the lowest position. (See page 30.) Sew at a slower, consistent speed to prevent uneven stitches.

SECTION VI

Test Sewing

Tension Release Key

Once threading is complete, press and hold the tension release key while pulling the threads forward for about 10 cm (4"). This key can also be used to remove stitches from the needle plate.



Controlling Sewing Speed

Setting Electronic Speed Reducer Lever

Maximum sewing speed can be preset by adjusting the speed reducer lever.

Move the lever up to the highest position to increase sewing speed to maximum speed.

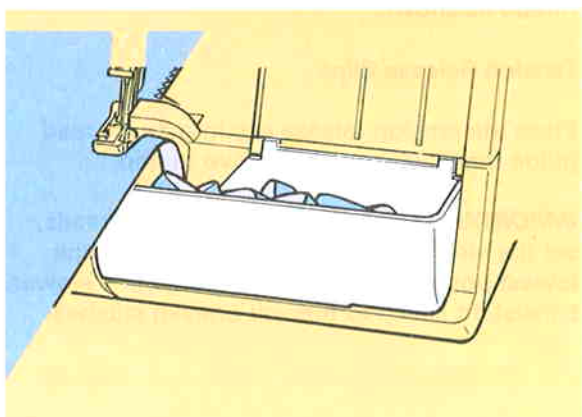
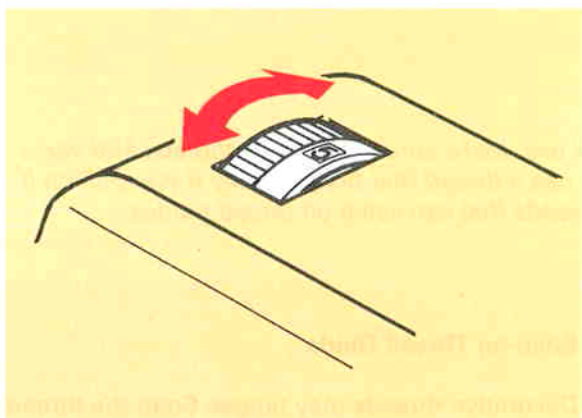
Move the lever down to the lowest position to decrease sewing speed to half the maximum speed.

Foot Control

Sewing speed varies with the foot control. The harder you press on the foot control, the faster the machine runs.

Setting Foot Pressure

The standard setting is position 5. The dial may be changed to increase or decrease the foot pressure depending on the type of fabric. There are six positions.

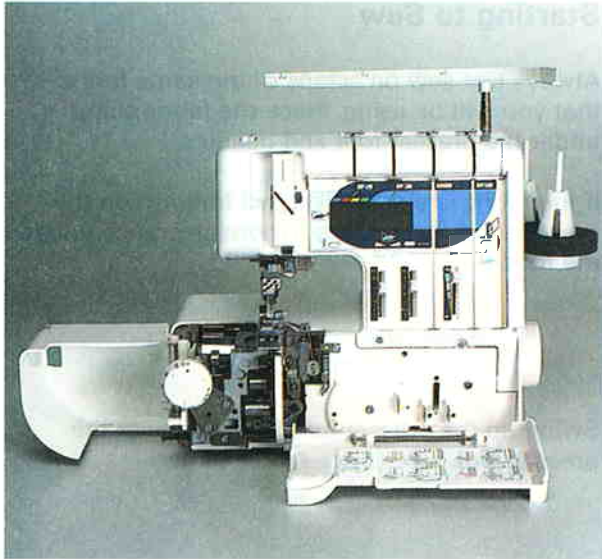


Waste Tray

Attach the waste tray to the front door. The tray will catch fabric scraps that are cut off.

SAFETY SYSTEMS

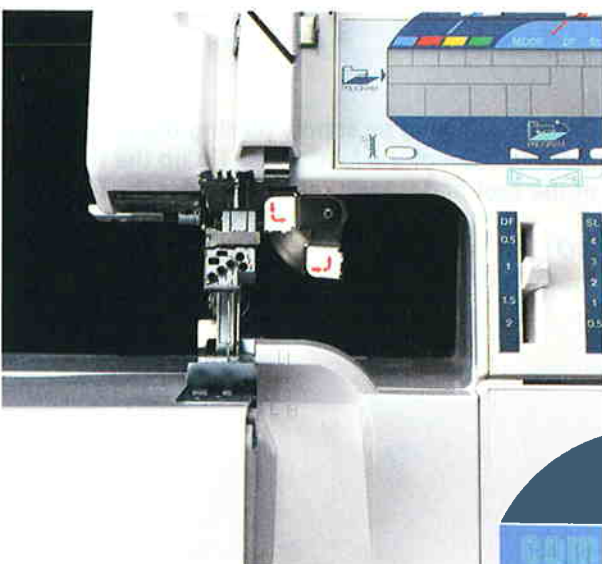
The machine will not operate when:



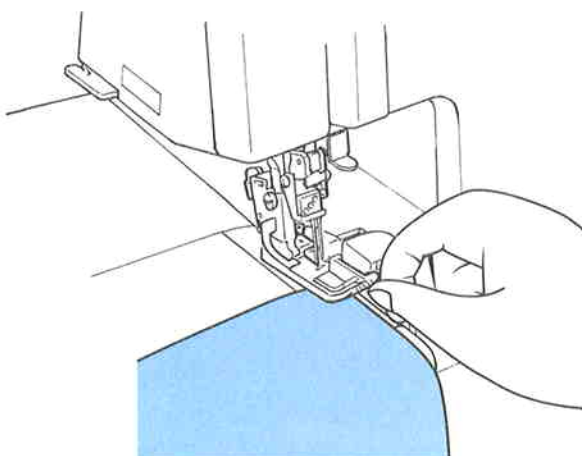
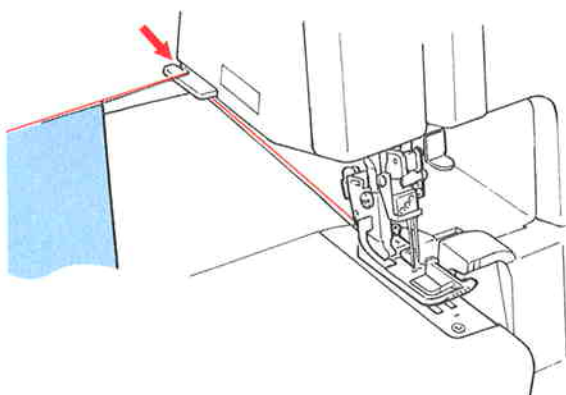
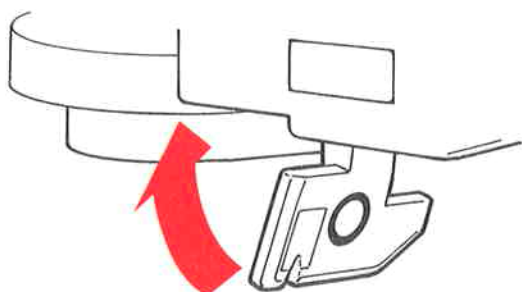
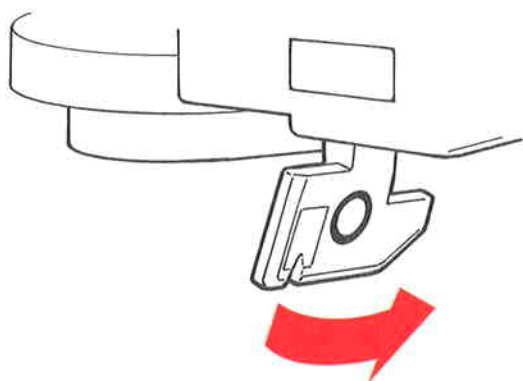
The front cover or side cover is open.



Presser foot is in up position.



The needle clamp safety lever is in released position (down).



Starting to Sew

Always test sew on scraps of the same fabric that you will be using. Place the fabric scrap under the presser foot and needles.

If the fabric is extra bulky, pull forward on the presser foot lever to have more clearance under the foot.

Swing up the presser foot lever to lower the presser foot.

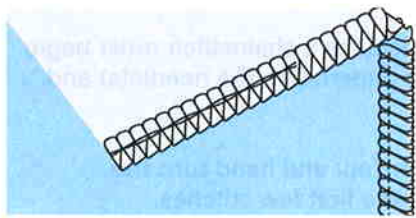
Hand turn the flywheel to form the first few stitches. Begin using the foot control at a slower speed, gradually building up the speed.

Hand guide the fabric gently while sewing. Check the stitch formation. If the stitch has irregularities, check the threading.

When you reach the end of the fabric, continue sewing to form stitches off the fabric (overlock chain-off threads). Keep pressing the foot control until you are able to cut the overlock chain-off threads with the thread cutter.

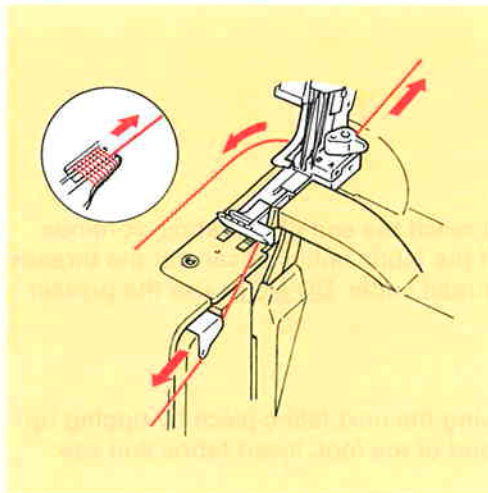
Continue sewing by simply placing the next fabric piece in front of the feed dogs. Tip up the front end of the foot and insert the fabric under the foot.

NOTE: It is not necessary to lift up the presser foot when placing the next fabric piece.

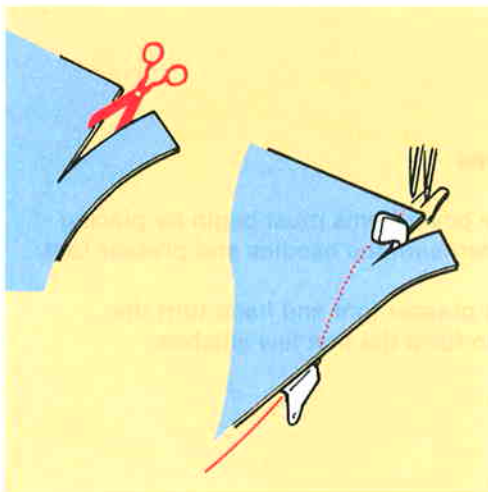


Back-Tack Device

The back-tack device allows you to easily insert the overlock chain-off threads into the seam at the beginning fabric edge. The device may be used when sewing these programs: Safety 4 Thread, Stretch Knit, 3 Thread Wide, Overlock 3, Overcast 2 and Stretch Wrapped.

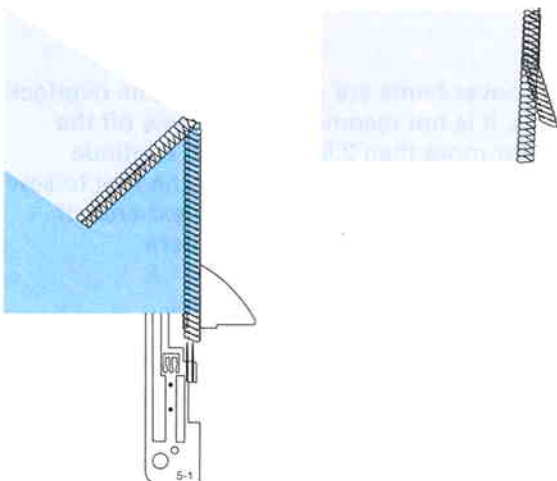


Raise the presser foot and gently remove the overlock chain-off threads from the instant rolled hem device (stitch width finger). Pull the stitches to the back and then around to the front. Secure the threads into the back-tack device.



Place the fabric directly in front of the needle(s). It may be necessary to hand trim the first 3 cm (1") along the seam line. Lower the presser foot and sew. The overlock chain-off threads are automatically inserted into the seam on the fabric underside.

NOTE: The back-tack device cannot be used for the Chainstitch, Cover Hems or Rolled/Narrow Hems.



Inserting Overlock Chain-Off Threads at the End of Seam

Sew to the edge of the fabric and stop. Raise the presser foot. Push the tension release key while gently removing the stitches from the instant rolled hem device (stitch width finger).

Turn fabric upside down (top side of seam will be next to the feed dog). Gently pull the threads above the tension discs to remove any slack.

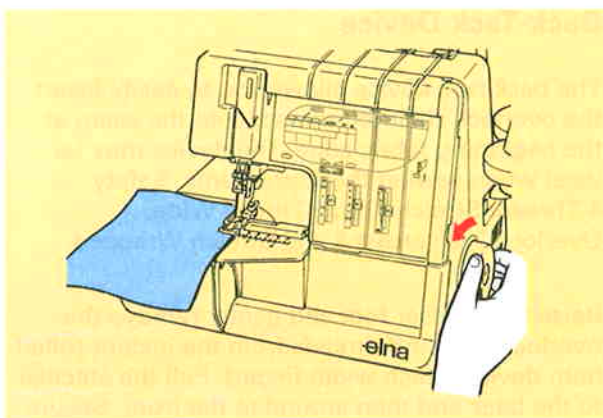
Align the edge of the fabric with the needle plate but do not cut the sewn seam. Sew about 5 cm (2") over seam and pivot fabric off to the left.

Chainstitch and Cover Hems

Chainstitch

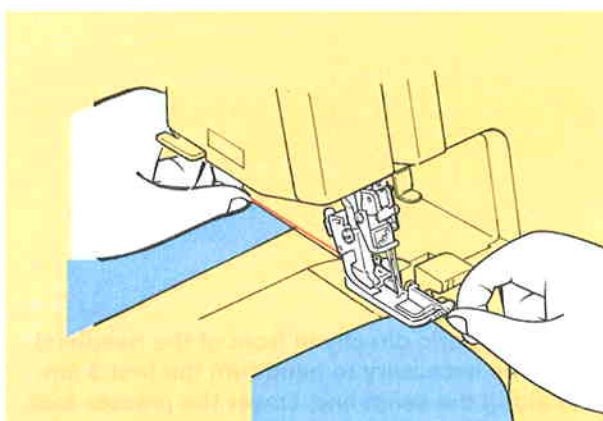
Any stitch that includes a chainstitch must begin by placing fabric underneath the needle(s) and presser foot.

Lower the presser foot and hand turn the flywheel to form the first few stitches.



When you reach the end of the fabric, continue sewing off the fabric until you can cut the threads with the thread cutter. **DO NOT** raise the presser foot.

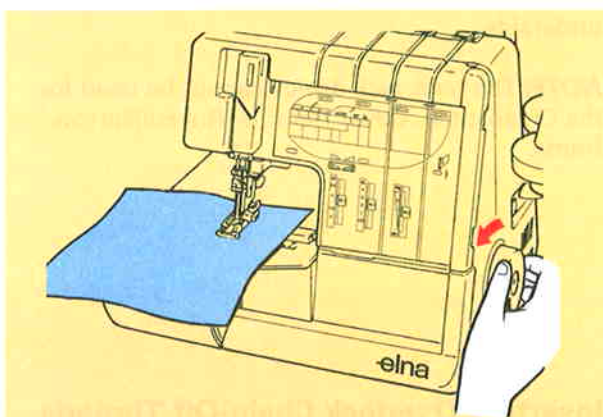
Begin sewing the next fabric piece by tipping up the front end of the foot. Insert fabric and sew.



Cover Hems

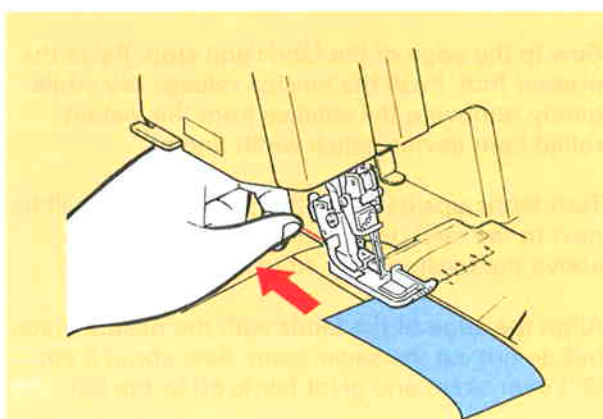
Any of the cover hems must begin by placing fabric underneath the needles and presser foot.

Lower the presser foot and hand turn the flywheel to form the first few stitches.

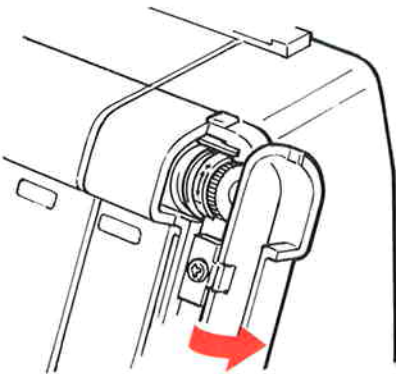


As the cover hems are different from the overlock stitches, it is not recommended to sew off the fabric for more than 2.5 cm (1"). To continue sewing, place a scrap fabric under the foot to sew on until you are ready to sew the next area of your project that requires a cover hem.

IMPORTANT: When re-threading either a chainstitch or a cover hem, you must start sewing with fabric underneath the needle(s) and presser foot.



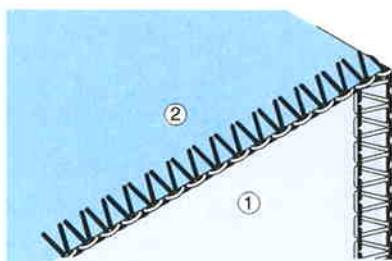
SECTION VII Adjustments



2 Thread Overcast Balanced Tension

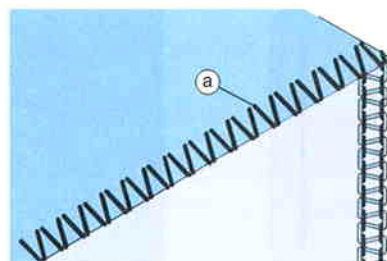
The needle thread should resemble a straight stitch on the topside ① of the fabric. It will lock with the lower looper thread on the fabric edge. The needle thread should lie flat in a V-shape on the fabric underside ②.

The lower looper thread should lie flat on the topside of the fabric and lock with the needle thread on the fabric edge.



The needle thread is too loose

If the needle thread (a) is pulled up over the fabric edge to the topside of the fabric, increase the needle thread tension and/or decrease the lower looper thread tension.



Thread Tension

The type of thread or fabric you use may require the tensions to be adjusted.

Before changing tensions, make sure the thread is properly engaged in the tension discs. (*HINT:* Press and hold the tension release key 5 while pulling up on the thread above the tension discs.)

Thread tensions are controlled by the +/- keys, No. 1 to 4, color coded blue, red, yellow and green. Press the +/-

key that corresponds to the thread that needs adjusting. The asterisks will be replaced with the numeric tension values for 15 seconds.

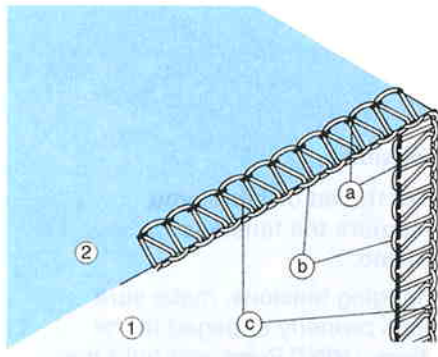
Every time you press a + or – tension key while the numeric tension values are visible, the settings change by increments of 0.2. Or if you press and hold the key, you can quickly scroll to new tension.

Adjust only one tension setting at a time and then view the result before adjusting again.

Notice that the mode changes to Manual after the tension value is modified. If the machine is switched off, the Manual mode will disappear and Auto or possibly Memory mode will appear when the machine is switched on again.

There are three programs that require threading the chain looper thread tension (brown) – 5 Thread, 5 Thr. 1/4 Inch and 4 Thr. 1/4 Inch. The chain looper thread tension is adjusted manually.

- ① Open the PRO Card door.
- ② The +/- marks in front of the dial indicate the direction for increasing or decreasing the tension.

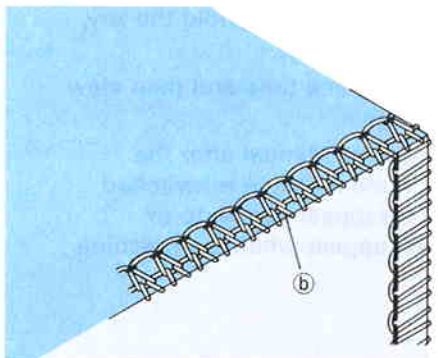


3 Thread Overlock Balanced Tension

- The needle thread should resemble straight stitches on the topside ① of the fabric and lie on the left hand side of the upper looper thread. The needle thread is visible in the lower looper thread on the underside ② of the fabric.
- The upper looper thread should lie flat on the topside of the fabric and lock with the lower looper thread on the edge of the fabric.
- The lower looper thread should lie flat on the underside of the fabric and lock with the upper looper thread on the edge of the fabric.

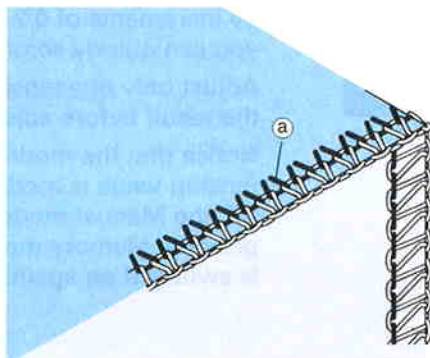
The upper looper thread is too loose.

If the upper looper thread (b) is loose and pulled down to the underside of the fabric, increase the upper looper thread tension (yellow) and/or decrease the lower looper thread tension (green).



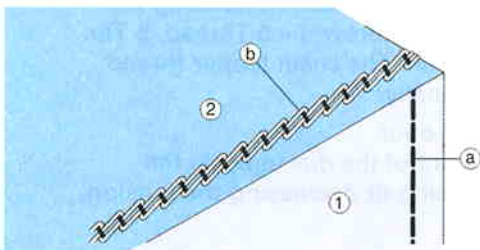
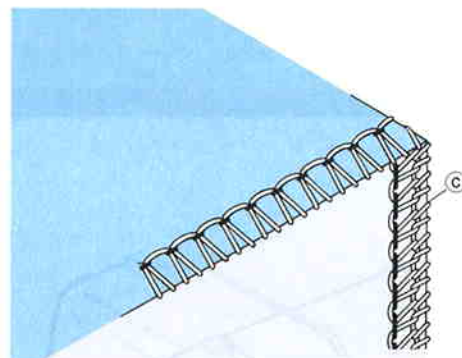
The needle thread is too loose.

If the needle thread (a) is too loose and clearly visible on the underside of the fabric, increase the needle thread tension (red) and/or decrease either or both looper thread tensions.



The lower looper thread is too loose.

If the lower looper thread (c) is loose and pulled up onto the topside of the fabric, increase the lower looper thread tension (green) and/or decrease the upper looper thread tension (yellow).

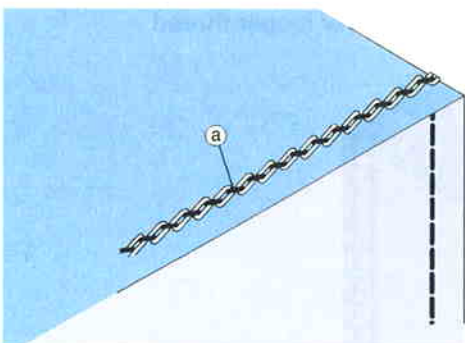


Chainstitch Balanced Tension

The chainstitch needle thread (a) resembles straight stitches on the topside ① of the fabric. It is just visible in the chainstitch looper thread (b) on the underside ② of the fabric.

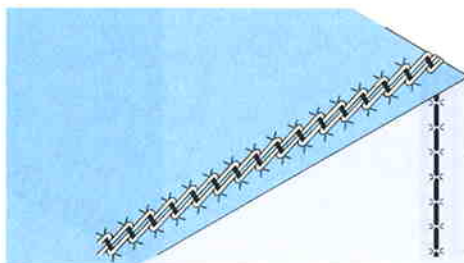
The needle thread is too loose.

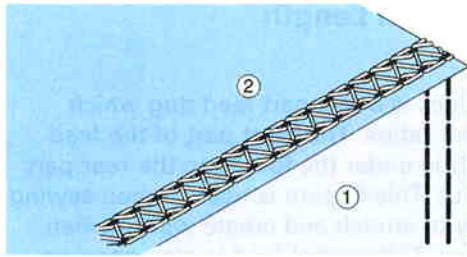
If the needle thread (a) is too loose and clearly visible on the underside of the fabric, increase the left needle thread tension (blue).



The needle thread is too tight.

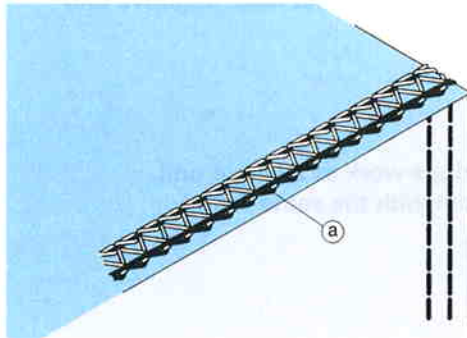
If the fabric puckers, decrease chainstitch needle thread tension (blue). Lightweight fabrics may require a shorter stitch length. Do not set the stitch length lever below 2.5.





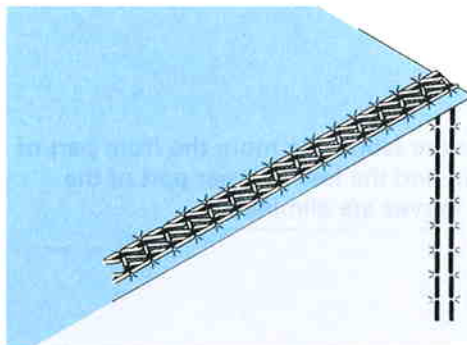
Cover Hem Balanced Tension

The needle threads resemble parallel rows of straight stitches on the topside ① of the fabric. The chain loop thread should be slightly slack on the underside ②. DO NOT set the stitch length lever below 2.5. Heavier weight fabrics will require a longer stitch length.



The needle thread is too loose.

If the needle thread (a) is too loose and loops appear on the underside of the fabric, increase the needle tension (red).



The needle threads are too tight.

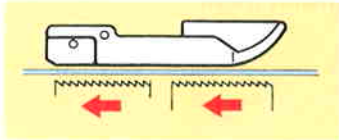
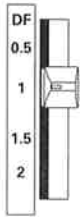
If fabric puckers form, the needle threads are too tight. Decrease the needle tensions.

See page 47 on how to memorize the new tension settings in the LCD system.

Differential Feed and Stitch Length

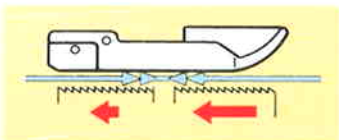
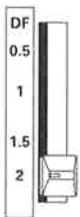
Differential Feed

Differential feed on an overlock is a two-part feed dog which feeds in the fabric at different ratios. The front part of the feed dog pushes more or less fabric under the foot than the rear part of the feed dog is feeding out. This feature is useful when sewing knits which have a tendency to stretch and create waves when sewn on an overlock machine. Differential feed is also good on sheer fabrics which tend to pucker when sewn. Use the 0.5 setting. There are two kinds of differential feed: negative and positive.



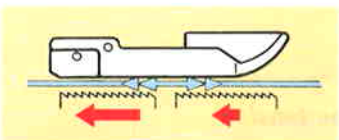
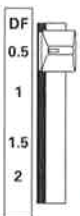
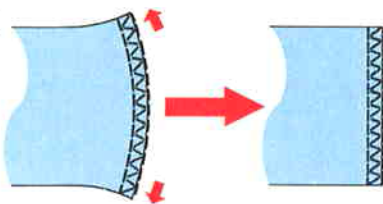
① Standard Feeding

The front and rear feed dogs work as a single unit. The fabric feeds in and out with the same ratio.



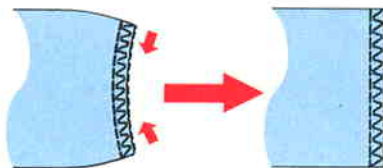
② Positive Feeding

The looser and stretchier the fabric, the more the front part of the feed dog must feed in and the less the rear part of the feed dog must feed out. Waves are eliminated.

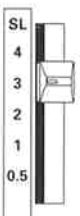


③ Negative Feeding

The front part of the feed dog feeds in less fabric than the rear part feeds out. The fabric is held taut by the feed dogs. Puckering is eliminated.



See page 47 on how to memorize the new DF setting in the LCD system.



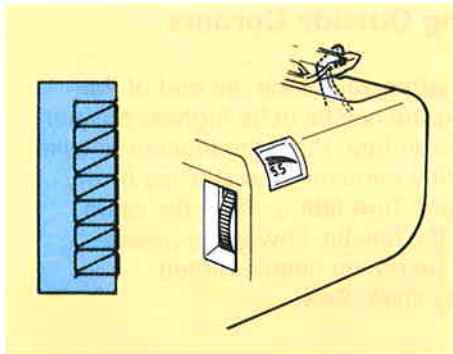
Stitch Length

The fabric weight and fiber content may require the SL (stitch length) to be adjusted. Stitch length may be set between 0.5 and 4. Set a shorter stitch length for lightweight or sheer fabrics. Set a longer stitch length for heavyweight or bulky fabrics.

NOTE: Always set the SL lever at 2.5 or higher when sewing a chainstitch or cover hem.

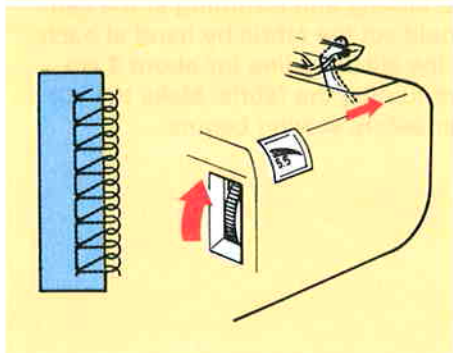
NOTE: The stitch length readout for the Cover Hem stitches is 2.5. This is the correct setting for two-three layers of light to medium weight fabric. Stitch length should be increased to 3.5 or 4 on heavy fabrics or when sewing over bulky seams while hemming.

See page 48 on how to memorize the new SL setting in the LCD system.



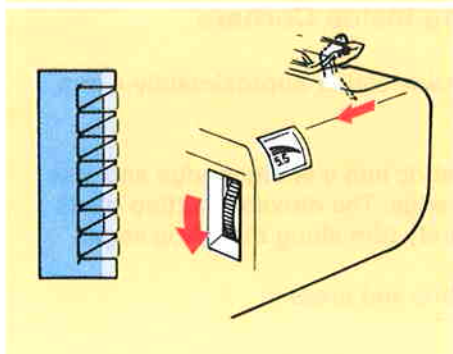
Cutting Width

The fabric weight and the number of fabric layers may require the cutting width dial to be adjusted. Fabric should lie flat inside the overlock stitch without loops or tunneling.



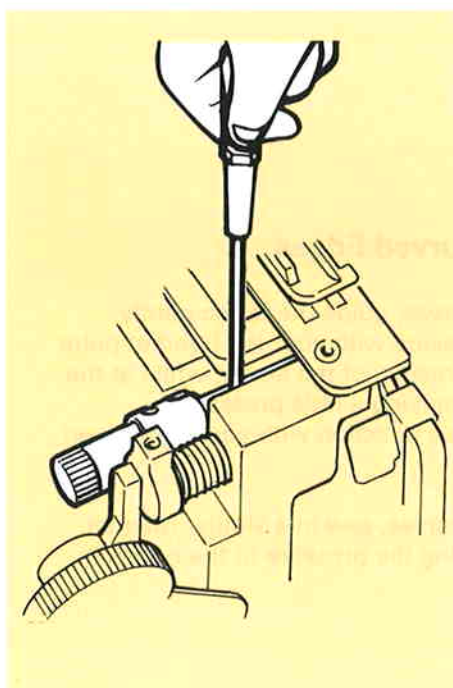
Loops

The cutting width is set narrower than the stitch width. Move the cutting blades to the right by turning the cutting width dial up (clockwise).



Tunneling

The cutting width is set wider than the stitch width. Move the cutting blades to the left by turning the cutting width dial down (counterclockwise).



Sewing Overlock Stitches on Extra Heavyweight Fabrics

Lock the movable cutting blade to provide maximum cutting strength.

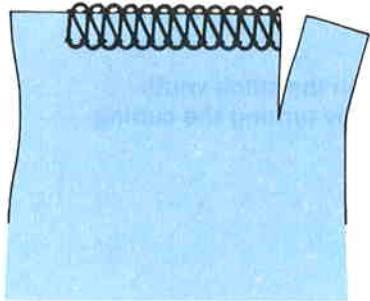
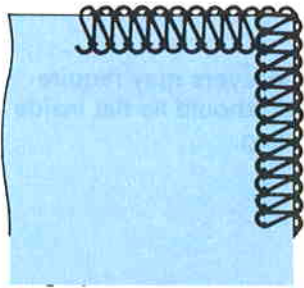
- ① Hand turn the flywheel to lower the needle bar to its lowest position.
- ② Open the side cover.
- ③ Use the allen screwdriver to turn the screw clockwise until the movable cutting blade cannot be disengaged.
- ④ Sew.

NOTE: After sewing extra heavyweight fabric, always turn the screw counterclockwise to unlock movable cutting blade for normal operation.

NOTE: Cutting width cannot be adjusted when movable cutting blade is locked.

SECTION VIII

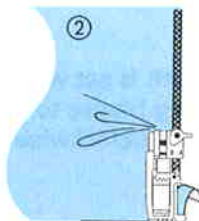
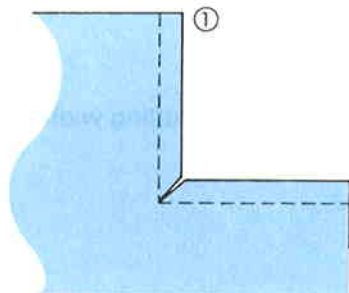
Sewing Techniques



Overlocking Outside Corners

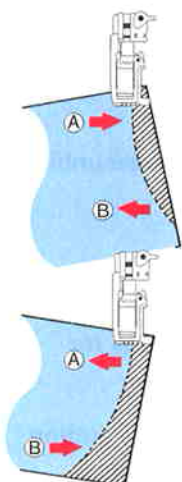
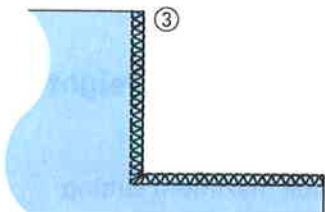
Stop sewing when you reach the end of the fabric, leaving the needle in its highest position. Raise the presser foot. Push the tension release key while gently removing the stitches from the stitch finger. Turn fabric. Align the sewn stitches with the needle. Lower the presser foot and pull up on the needle thread to remove any slack. Sew.

If you are overlocking and trimming at the same time, you should cut the fabric by hand at each corner along the stitching line for about 3 cm (1 1/2") before turning the fabric. Make the cut to each corner before sewing begins.



Overlocking Inside Corners

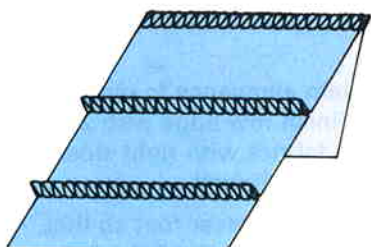
- ① Clip the inside corner approximately 4 mm (1/4").
- ② Fold the fabric into a straight edge and sew along the edge. The movable cutting blade should barely trim along the fabric edge.
- ③ Unfold fabric and press it.



Sewing Curved Edges

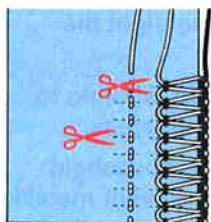
For inside curves, guide the fabric gently, applying pressure with your left hand at point "A" in the direction of the arrow, while at the same time applying a little pressure in the opposite direction with your right hand at point "B".

For outside curves, sew in a similar manner, but by applying the pressure in the opposite directions.



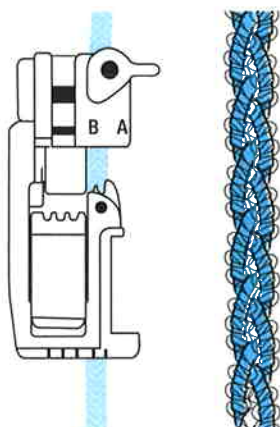
Overlock Pintucks

Disengage the movable cutting blade. Use a washable fabric marker to draw lines for pintucks. Fold fabric with wrong sides together on first line. Sew folded edge using the edge of the needle plate as a guide. (Do not allow the fabric to be sewn beyond right side of the needle plate.) Sew remaining pintucks using same method. Press tucks to one side.



Removing Stitches from Fabric

Snip the needle thread(s) at intervals. Gently pull the looper thread(s) and the stitch will unravel.

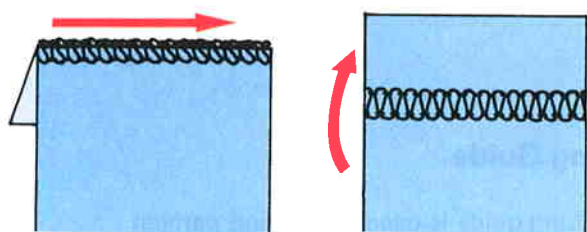


Deco Braids 3

Depending on the size of braid desired, place pearl cotton, yarn or tape under the presser foot to the right of the needle.

Lower presser foot. Sew a few stitches by hand turning the flywheel. Sew over the tape to make one strand of the braid. Make 3 strands to braid together. Hand sew braid into place.

TIP: The Q foot and K₂ guide are optional accessories that will help guide the tape while sewing.



Deco Flatlock 3

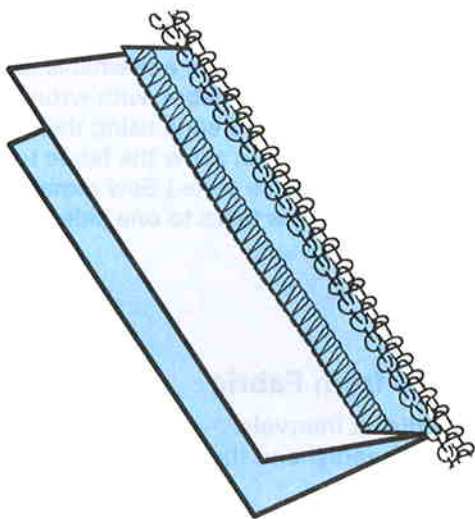
Use a washable fabric marker to draw stitching lines. Fold the fabric (wrong sides together) along the stitching line.

Place folded fabric under presser foot and sew. Gently pull fabric flat.

TIP: The fabric will lie flatter if the stitches form off the folded edge. Use the D foot (optional blind hem foot) as a guide for the folded edge.

Deco Ladder 2

Use same procedure as Deco Flatlock 3 but fold fabric with right sides together.



Fagoting 2

Press 13 mm (1/2") seam allowance to wrong side of both fabrics. (Finish raw edge with 2 or 3 thread overlock.) Place fabrics with right sides together and folded edges aligned.

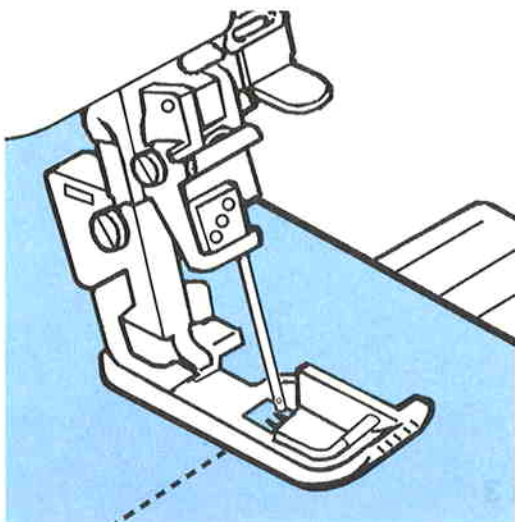
Place the fabrics under the presser foot so that the needle will barely catch both folded edges. Stitches will form off the fabrics. Sew.

Gently pull apart fabrics to reveal lacy, open look. Place lining underneath the fagoting for wearing comfort. Use a contrast color to highlight the fagoting.

NOTE: Use straight grainlines when fagoting to achieve the best results. Avoid curve areas.

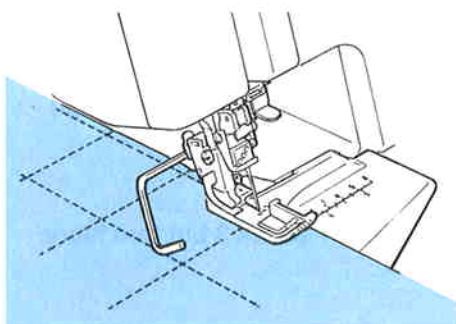
A topstitching needle size 14/90 for household sewing machines may be used to prevent metallic thread from fraying at needle eye. When using Buttonhole Twist, increase green tension to 5.0-6.0. When using metallic thread, place a tension release clip in the blue guide.

TIP: Use the D foot (optional blind hem foot) as a guide for the folded edges.



Chainstitch – Turning Corners

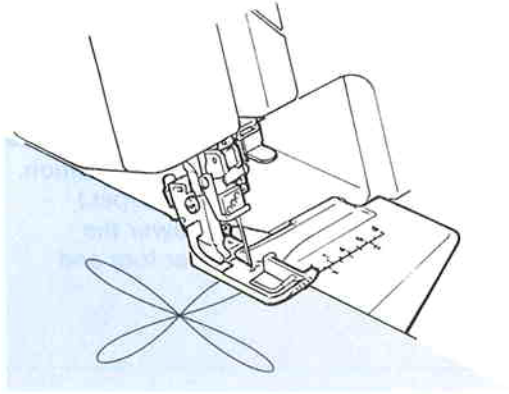
Sew last stitch before turning point by hand turning the flywheel. Complete the stitch. Raise the needle slightly out of the fabric. (The needle eye will be out while the needle tip remains in fabric.) Raise presser foot and gently turn fabric. Lower presser foot and continue sewing.



Quilting Guide

The quilting guide is used for sewing parallel rows of stitching at an equal distance apart.

Insert the quilting guide into the needle bar. Use a washable fabric marker to draw the first stitching line. Sew over line. Sew all other rows guiding the quilting guide over the previous row of stitching.



Deco Chain

1. Draw design lines on the interfacing or stabilizer (wrong side of fabric). Finer weight fabrics will require the use of fusible interfacing or a tear-away stabilizer.
2. Sew with the right side of fabric FACE DOWN. The markings on the tip of the foot are for sewing accurately. (*Remember to start the chainstitch with fabric underneath the presser foot and needle.*)
3. Once the chainstitch is formed, the presser foot should not be lifted.
4. Carefully remove tear-away stabilizer.

Cover Hem

A majority of ready-to-wear garments use a flat construction method for hems with the side seam sewn last. Many home sewers prefer sewing "in the round".

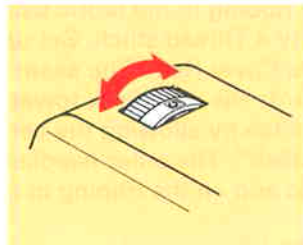
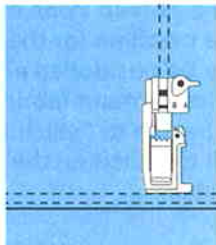
Sewing the Cover Hem "In the Round"

Method 1

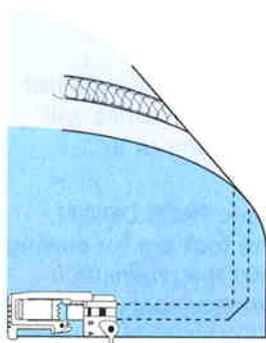
Press up the hem allowance and place fabric under the presser foot. Use markings on the sewing table as a sewing guide. Stitch around the hem and, upon reaching the original start point, overlap the stitches approximately 13 mm (1/2") and stop. Cut the needle threads after giving them a little slack. Remove fabric from machine. Pull threads to underside and tie off. Apply a small amount of seam sealant to knotted threads.

Method 2

Stitch around the hem; overlap the original starting point for about 13 mm (1/2"). Stop; needles will be up. Hand turn the flywheel towards you to bring needles to the lowest position into the fabric. Carefully reverse the flywheel, bringing needles to the highest position. **This technique prevents the needle threads from wrapping around the chain looper.** Lift the presser foot and press the tension release button. Firmly pull fabric and threads to the left. Cut and pull threads to the underside to tie off. Apply a small amount of seam sealant to knotted threads.

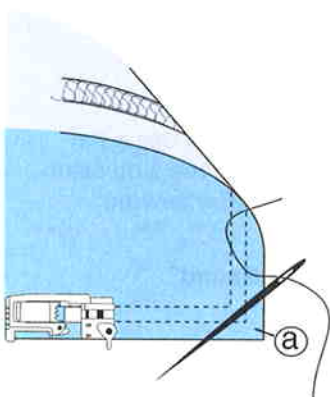


When sewing a cover hem over bulky seams (i.e. Safety 4 Thread) it will be necessary to adjust foot pressure to 1 when reaching seam to prevent skipped stitches. After the foot has "cleared" the seam, return to normal pressure of 5.

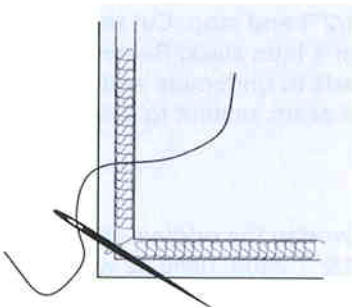


Turning Corners

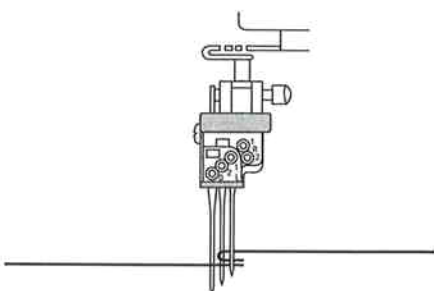
Sew to the turning point and stop with needles up. Hand turn the flywheel towards you to bring needles to the lowest position into the fabric. Carefully reverse the flywheel bringing needles to the highest position. (This releases the needle threads off the looper.) Raise the presser foot, turn the fabric, lower the needles into the fabric, lower the presser foot and continue sewing.



The looper thread will drop at the corner. Use a hand needle and thread to prevent the loop from unraveling. Pull the diagonal thread to corner (a).



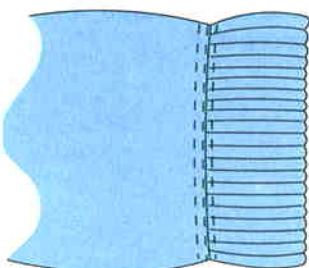
Turn fabric over and secure loop to corner on the underside.



Triple Cover Hem – Topstitching an Overlock Seam

The Triple Cover Hem flattens the overlock seam eliminating excess bulk and allows maximum stretch and comfort. The topstitching is quick and attractive.

Sew ribbing to the fabric using a 3 Thread Wide or Safety 4 Thread stitch. Set up the machine for the Triple Cover Hem. The seam may be positioned either towards the ribbing or towards the garment fabric. Topstitch by allowing the center needle to “stitch in the ditch”. The outer needles will topstitch on the fabric and on the ribbing in one step.



NOTE: It is acceptable to use the Cover Hem Wide for topstitching an overlock seam.

The chain looper thread should be tightened to keep the overlock seam as flat as possible. When the looper thread is tightened, the fabric may pucker and the capacity of stretch is decreased.

Flat Assembly Methods

Panties

1. Machine setup: Narrow Hem 3 with texturized nylon (ex. Wooly Nylon™) in upper looper. Sew crotch to front and back.
2. Machine setup: Cover Hem with texturized nylon in chain looper. Cut 2 lengths of elastic for leg openings. Apply elastic by using the C foot (optional accessory) and an elastic gatherer:

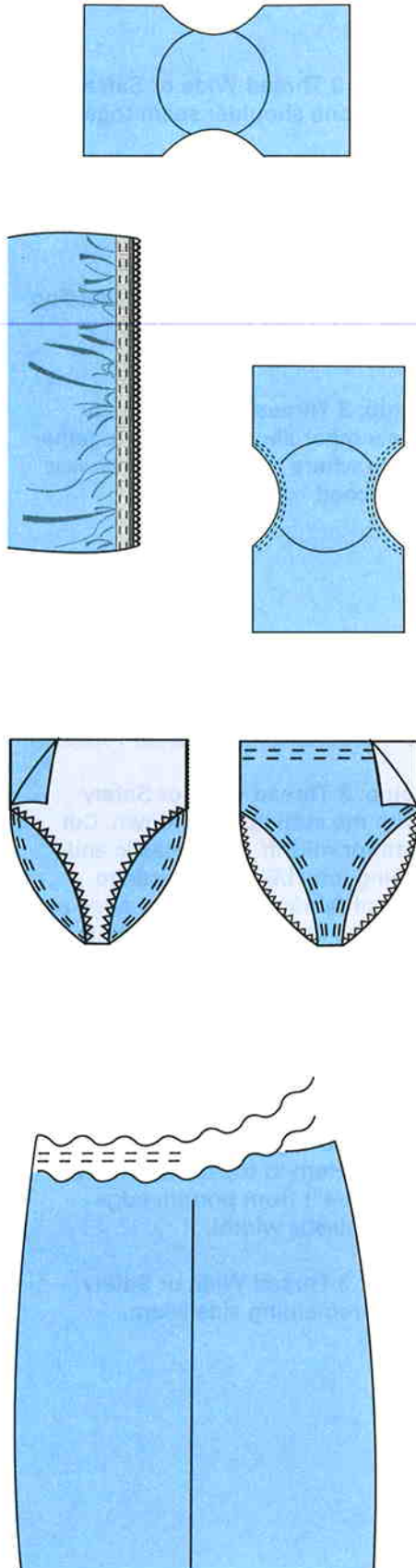
13 mm (1/2") gatherer – Cover Hem Wide
10 mm (3/8") gatherer – Cover Hem Narrow

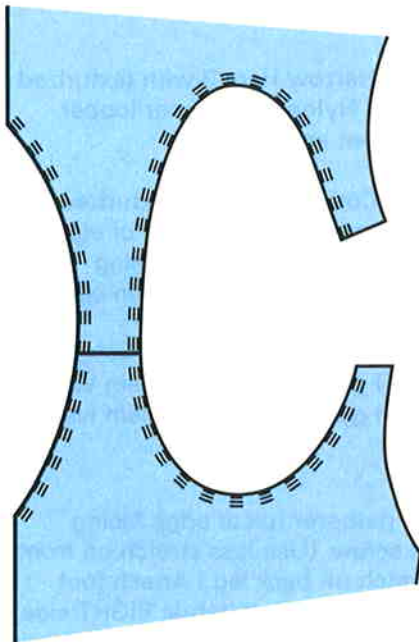
Insert elastic into gatherer (picot edge facing the right); adjust screw. (Use less stretch on front leg and more stretch on back leg.) Attach foot to machine. Place leg opening (fabric RIGHT side up) under presser foot and elastic, aligning elastic edge and raw edge. Sew. This technique neatly topstitches the elastic on top of the fabric.

3. Machine setup: Narrow Hem 3 with texturized nylon. Sew one side seam.
4. Machine setup: Cover Hem Wide with texturized nylon in chain looper. Cut elastic for waist. Use same method as Step 2.
5. Machine setup: Narrow Hem 3 with texturized nylon. Sew remaining side seam.

Half Slip

1. Machine setup: Narrow Hem 3 with texturized nylon in upper looper. Sew one side seam.
2. Machine setup: Cover Hem Wide with texturized nylon in chain looper. Cut stretch lace for waist. Measure and mark lace and waist area into 1/8's. Match the markings and overlap lace edge with raw edge of fabric about 10 mm (3/8") for an even lace distribution. Stitch 3 mm (1/8") from lace edge. Hand trim away excess fabric.
3. Machine setup: Cover Hem with texturized nylon in chain looper. Pin lace (right sides up) at hemline area with outside lace edge even to raw edge of fabric. Stitch close to the inner edge of lace. Hand trim away excess fabric.
4. Machine setup: Narrow Hem 3 with texturized nylon in chain looper. Sew side seam.



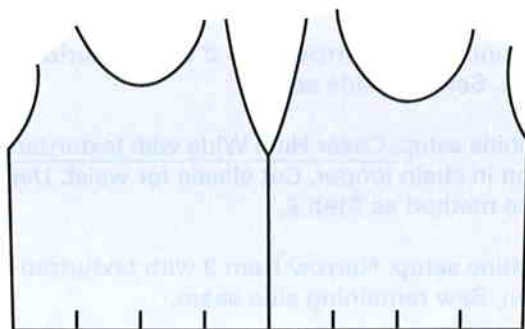


Sports Top

1. Machine setup: 3 Thread Wide or Safety 4 Thread. Sew one shoulder seam together.

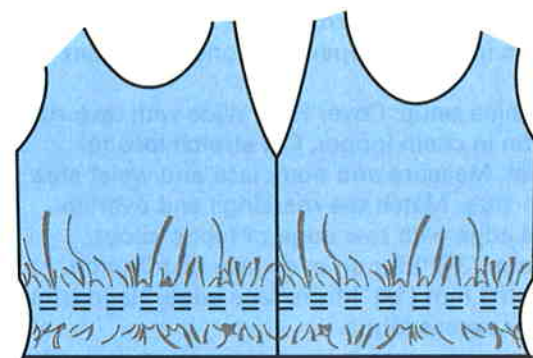
2. Machine setup: Triple Cover Hem. Finish armhole and neckline areas by folding under 13 mm (1/2") and topstitching with Triple Cover Hem.

3. Machine setup: 3 Thread Wide or Safety 4 Thread. Sew other shoulder seam together and side seam where the armhole area was already topstitched



4. Machine setup: Triple Cover Hem. Fold under 13 mm (1/2") around armhole area. Topstitch.

5. Machine setup: 3 Thread Wide or Safety 4 Thread with the cutting blade down. Cut elastic length for midriff. Mark elastic and midriff opening into 1/8's. Pin elastic to WRONG side of fabric aligning raw edge and markings. Sew to attach elastic to fabric.



6. Machine setup: Triple Cover Hem. Fold elastic under to form a casing effect. Secure by using the Triple Cover Hem to topstitch about 2.5 cm-3 cm (1"- 1 1/4") from bottom edge (depending on elastic width).

7. Machine setup: 3 Thread Wide or Safety 4 Thread. Sew remaining side seam.

SECTION IX

Memory Mode

The LCD system has 24 built-in programs that are displayed as Auto Mode settings.
(See page 6 for program names.)

Each Auto Mode program may be changed and the new settings may be stored as Memory Mode settings. It is possible to have a total of 48 programs in the LCD system: 24 Auto Mode settings and 24 Memory Mode settings.



Thread Tensions

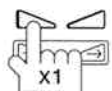
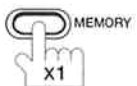
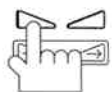
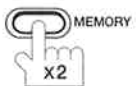
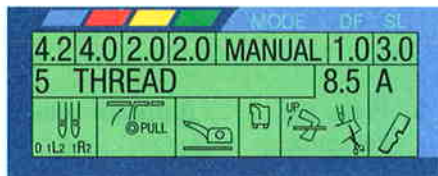
Press the program selection keys until 5 Thread Auto Mode appears.

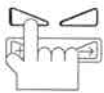
Adjust tensions to new settings as desired.
(See page 35.) The mode will read "Manual". Press the Memory Key twice to memorize the new tension settings. Manual Mode readout will disappear; Memory Mode readout will appear. The Memory Mode settings will not disappear when switching off the machine. The machine will now contain the 5 Thread Auto Mode settings and, in addition, will have the new customized settings as 5 Thread Memory Mode.

DF Value

Press the program selection keys until Stretch Knit Auto Mode appears.

1. Press Memory Key once.
2. The DF value starts to blink.
3. Press the  program selection forward key. The differential feed value readout increases 0.5 each time the key is pressed. When the maximum is reached, it then reverts to the minimum. Notice the Auto Mode changes to Manual. If the SL value also needs to be changed, press the  program selection backward key. (See page 48; continue with step 4.)
4. If the DF value is the only change, press the Memory key again to memorize the new DF value. The machine will now contain the Stretch Knit Auto Mode settings and, in addition, will have the new customized setting as Stretch Knit Memory Mode.



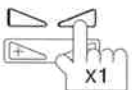



SL Value

Press the program selection keys until 3 Thread Wide Auto Mode appears.

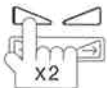



1. Press Memory key once.
2. The DF value starts to blink.



3. Press the  program selection backward key once.

4. The SL value starts to blink.



5. Press the  program selection forward key. The stitch length value readout increases 0.5 each time the key is pressed. When the maximum is reached, it then reverts to the minimum. Notice the Auto Mode changes to Manual.



6. Press the Memory key again to memorize the new SL value. The machine will now contain the 3 Thread Wide Auto Mode settings and, in addition, will have the new customized setting as 3 Thread Wide Memory Mode.


How to Change Values in Memory Mode

Method 1

Press the program selection keys until 5 Thread Auto Mode appears.

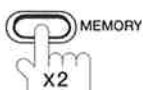
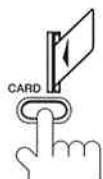
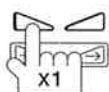
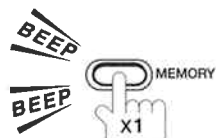
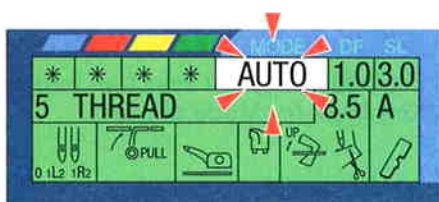
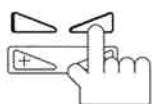
Adjust tensions to new settings. The mode will read "Manual". Press the Memory key once. The DF value starts to blink. Make changes to either DF or SL.
(See pages 47-48.)

Press the Memory key again to memorize the new settings. The machine will beep twice to signal that the Memory Mode is already occupied and the machine will not memorize the new settings.

Press the  program selection forward key once. 5 Thread Memory Mode will appear.

Press and hold the Card key until the 5 Thread Manual Mode appears.
(A PRO Card cannot be in the machine.)
The 5 Thread Memory Mode has been erased and the new settings can now be memorized.

Press Memory key twice. The machine will now contain the 5 Thread Auto Mode and new 5 Thread Memory Mode settings.



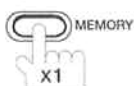


Method 2

Press the program selection keys until Stretch Knit Memory Mode appears.



Adjust tensions to new settings. The mode will read "Manual". Press the Memory key once. The DF value starts to blink. Make changes to either DF or SL. (See pages 47-48.)



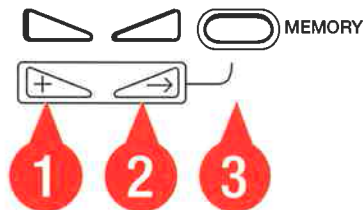
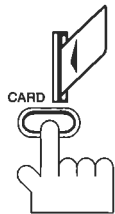
Press the Memory key again to memorize the new settings. The machine will beep once. The new settings will replace the old settings in the Memory Mode.



Erasing Memory Mode Programs

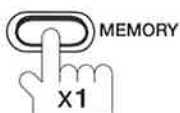
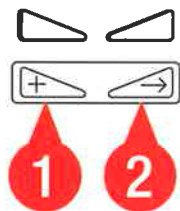
To Erase Only One Memory Mode Program

Display the Memory Mode program in the LCD system screen. Press and hold the Card key until the Memory Mode disappears and the Auto Mode appears. (A PRO Card cannot be in the machine while erasing Memory Mode programs.)



To Erase All Memory Mode Programs

Switch off the machine. Press and hold both program selection keys and the Memory key simultaneously while switching on the machine.



Language Selection

There are seven languages available for the LCD system screen. Press and hold the program selection keys simultaneously while switching on the machine. Each time the key is pressed, a new language is selected as per the sequence shown. Press the key to reverse the sequence. Once the desired language is selected, press the Memory key.

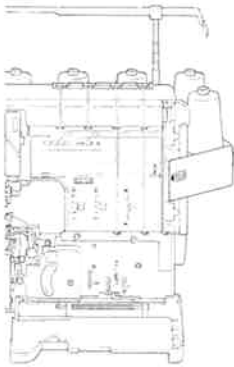
- | | | |
|----|----------|------------|
| 1. | 5 Thread | English |
| 2. | 5 Fils | French |
| 3. | 5 Faden | German |
| 4. | 5 Hilos | Spanish |
| 5. | 5 Fili | Italian |
| 6. | 5 Draad | Afrikaans |
| 7. | 5 Fios | Portuguese |



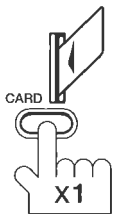
SECTION X

PRO Card Mode

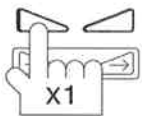
Three additional program settings are available on optional PRO Cards. Each PRO Card has its own booklet to explain the new stitches it contains.



1. Open the PRO Card door.
2. Insert the card with the blue arrow pointing towards the left and to the inside as far as it will go.



3. Close the PRO Card door.
4. Press the Card key; the LCD screen switches to Card Mode and the first program appears.



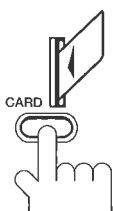
5. To select another program, press a program selection key.



Each PRO Card allows you to store three customized settings on it. Adjust tensions as desired by using +/- keys.



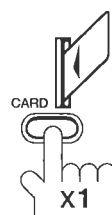
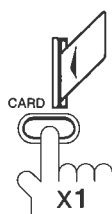
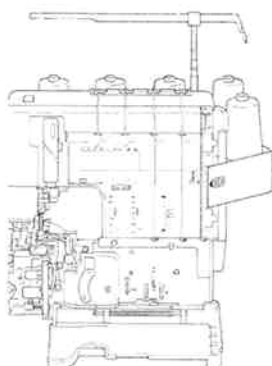
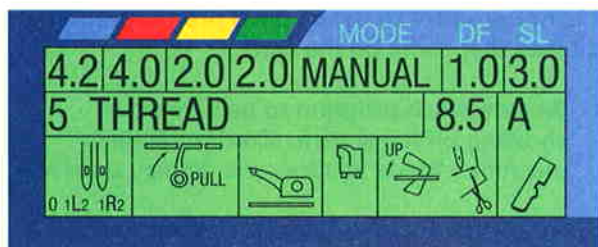
Adjust DF and SL values by pressing Memory key once and using program selection keys.



When all new values have been selected, press the Card key. PRO Card now contains 3 Card Mode settings and 1 Card M Mode setting.

Programming a Manual or Memory Stitch onto the PRO Card

It is possible to program Manual or Memory Mode stitches onto a PRO Card. The LCD screen must display the program that will be stored onto the Card.



Procedure:

1. Make any changes by adjusting the tension settings, differential feed and/or stitch length settings before inserting Card.
(See pages 35, 47-48.)
2. Insert Card. (Do NOT press Card key.)
3. Press Memory key once. DF setting will blink.
4. Press Card key once; blinking will stop.
(If the machine beeps twice, the PRO Card already has 3 Card M settings. You must delete one of the Card M settings – see page 54 - or use a different PRO Card.) Mode window will not change. Stitch program is now memorized onto the card.
5. Press Card key again to access stitches on the Card. Press Program Selection key to scroll through stitches on the Card. Mode window will now display Card M for program that was stored on the PRO Card.
6. Make personal notes on last page in PRO Card booklet.



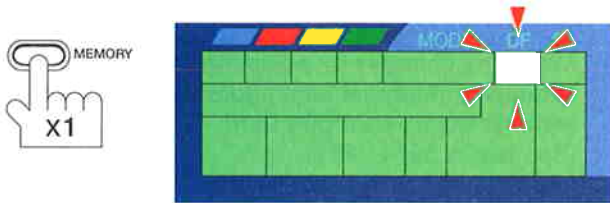
Deleting Card M Settings from the PRO Card

It is not possible to delete the 3 pre-programmed stitches that come on the card.

1. Be sure stitch program to be deleted is showing on the screen. (Card must be in machine.) Mode window will display Card M.



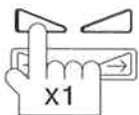
2. Press Memory key once. DF setting will blink.



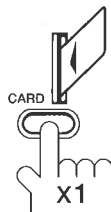
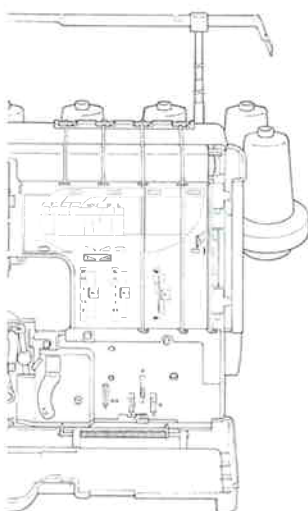
3. Press Card key and continue pressing until blinking stops. Card M stitch has now been deleted. Screen will show next stitch setting on card. Mode window will say Card.



4. Press Program Selection key to scroll through stitches on the Card.



5. Remove the PRO Card from the machine and press the Card key to exit the Card system and return to pre-programmed menu of stitches.



SECTION XI

Maintenance

Proper machine cleaning and oiling are essential to ensure maximum machine performance.

Cleaning and Oiling

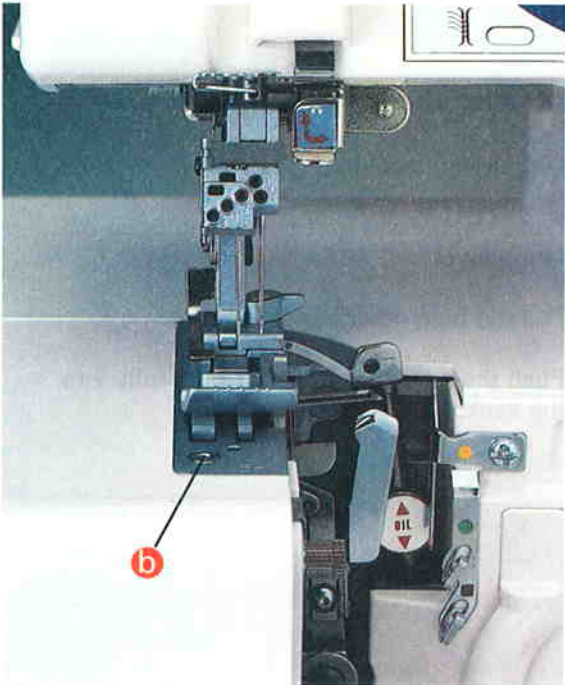
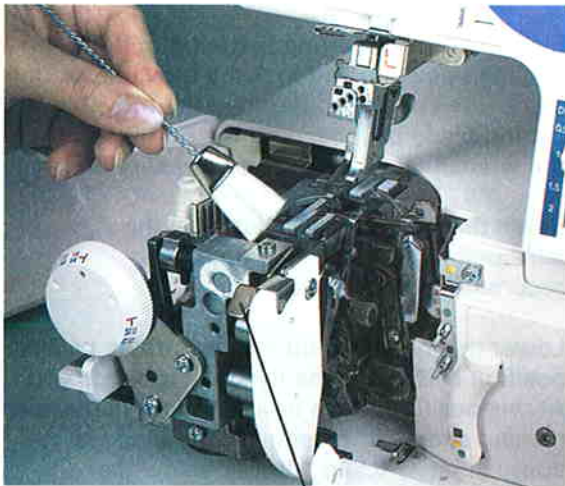
Unplug the machine from the electrical outlet. Open the front and side covers.

Remove the presser foot by pushing the lever behind the needle bar.

Remove the needle plate by pushing down its release lever (a).

Disengage the movable cutting blade.

Use the brush to remove all lint and fiber accumulation.



Place a drop of oil above and below the oiling arrows. Oiling should be performed for every 8 hours of actual sewing operation.

Reattach the needle plate by pressing down on its front section until it snaps onto the needle plate screw (b).

To reattach the presser foot, place the foot underneath the presser foot area and lower the needle bar. The foot will snap back into place.

Replacing the Movable Cutting Blade

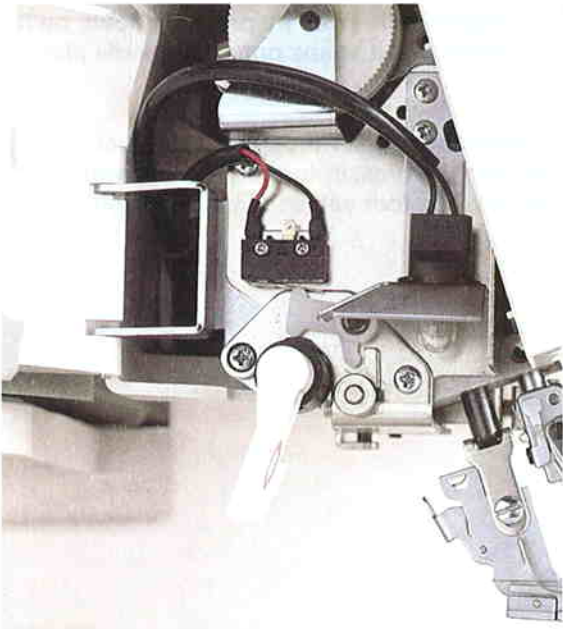
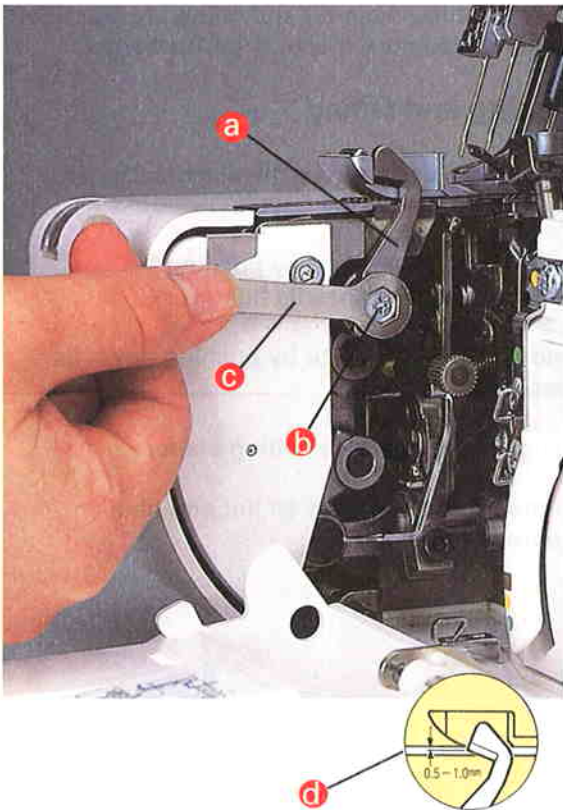
A spare movable cutting blade is located in the accessory box. Replace the blade when it becomes dull or nicked.

- ① Unplug the machine.
- ② Open both front and side covers.
- ③ Set the movable cutting blade (a) in its engaged position and lock the movable cutting blade. (See page 39.) Remove the movable cutting blade by loosening the bolt (b) with the wrench (c) found in the accessory box.

Brush the fixed cutting blade and the surrounding area to clean out any accumulation of lint, etc.

- ④ Lower the movable cutting blade to its lowest position by turning the flywheel towards you. At this position, put a new blade (d) in place, making sure that the edge of the blade is approximately 0.5 to 1.0 mm below the surface of the fixed cutting blade. Tighten the bolt (b) firmly. Unlock the movable cutting blade.

NOTE: The fixed cutting blade is made of a special hard alloy and will not normally have to be replaced.



Replacing the Light Bulb

- ① Unplug the machine.
- ② Raise the presser foot and swing open the lamp cover.
- ③ Pull the bulb downwards and out.
- ④ Push the new 15 volt 5 watt bulb fully into the socket. Close the lamp cover.

TROUBLESHOOTING

Skipping or irregular stitches

Incorrect threading	22-23
Incorrect thread tensions	35-37
Needle problems – poor quality, bent or dull.....	20
Needles not inserted correctly	9
Do not pull on fabric, guide it gently	32
Incorrect presser foot	11
Needle plate or foot not attached correctly	55
Cutting width dial not set correctly	11
Antenna not extended/positioned correctly	4
Do not lift presser foot at end of seam	32, 34
Upper looper not engaged	10
Incorrect pressure used for heavier fabrics	30

Breaking threads

Incorrect threading	22-23
Incorrect thread tensions	35-37
Thread tangled or knotted	21-23, 29
When re-threading lower looper, needle eye must be unthreaded before re-threading looper	23
Needle plate or foot not attached correctly	55
Antenna not extended/positioned correctly	4
Foam pads needed on spool pin bases	4

Chainstitch or Cover Hem thread breaks

Thread tension(s) too high	36
Stitch length set too short, SL must be higher than 2.5	36
Needle problems – poor quality, bent or dull.....	20
Needle not inserted correctly	9
After re-threading chain looper or needle, fabric must be placed under presser foot	34
Lower looper threaded – Re-thread into chain looper	27-28

Fabric puckers

Needle tension(s) too high.....	35-37
Stitch length too long	8
Thread too heavy	21, 29
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